BLM LIBRARY
88070502

Big Butte T.S.
Calif.

SUMMARY

Draft ( ) Final (X) Environmental Statement

Department of the Interior, Bureau of Land Management

1. Type of action: Administrative (X) Legislative ( )

2. Brief Description of Action: Proposed development of public access and initiation of a timber management program in the Big Butte Area of Mendocino and Trinity Counties, California. The sale will cover 300 acres in two units and will remove 6,600 MBF. Public recreational use would be allowed after development of a plan for management of recreation use.

3. Summary of Environmental Impact and Adverse Environmental Impacts: The proposal will have an impact upon water quality, soil stability, air quality, vegetation, wildlife, recreation use, archeological resources, primitive values and employment in the Covelo community. Major adverse impacts are the possibility of increased stream sedimentation and the loss of primitive values.

4. Alternatives Considered:

   A. No action
   B. Granting of private rights-of-way only
   C. Obtaining administrative access and granting of private rights-of-way
   D. Obtaining administrative or public access only
   E. Management as a roadless area

5. Date Statement Made Available to CEO and the Public:

   Draft Statement: 74/13 2/20/74 March 4, 1974.
   Final Statement: negative determination - 11/11/75

6. Comments were received from the following Federal, State and local government agencies.

   Federal Agencies

   Environmental Protection Agency
   U.S.D.A., Agricultural Research Service
   U.S.D.A., Forest Service
   U.S.D.A., Soil Conservation Service

B
.98
FES

SHOUT
SHARE
IT

U.S.D.I., Fish and Wildlife Service
U.S.D.I., National Park Service
U.S.D.I., Bureau of Outdoor Recreation

State Agency
State of California, The Resources Agency

Local Government
Trinity County Supervisors

#922541622

ID88070502

BIGB
.98
FES

SD
436
.C2
U58
1975

DEPARTMENT OF THE INTERIOR

FINAL

ENVIRONMENTAL STATEMENT

Proposed

BIG BUTTE TIMBER SALE, CALIFORNIA

Prepared by

CALIFORNIA STATE OFFICE, SACRAMENTO, CALIFORNIA
BUREAU OF LAND MANAGEMENT
DEPARTMENT OF THE INTERIOR

Director

Bureau of Land Management
Library
Bldg. 50, Denver Federal Center
Denver, CO 80225

BIG BUTTE DRAFT ENVIRONMENTAL STATEMENT

TABLE OF CONTENTS

Page

I. DESCRIPTION OF THE PROPOSAL 2

A. Purpose and Description 2

1. General 2
2. Access Road 2
3. Forest Management 5
4. Public Use 11
5. Right-of-Way Permit 11

B. Location 12

C. Timing 12

D. Management Interrelationships 14

1. U.S. Forest Service 14
2. Louisiana-Pacific Corporation 15
3. Richard A. Wilson 16

II. DESCRIPTION OF THE ENVIRONMENT 18

A. Physical Environment 18

1. Physiography 18
2. Soil and Geology 18
3. Water Quality 21
4. Air Quality 23
5. Climate 23

TABLE OF CONTENTS
(continued)

Page

IX. CONSULTATION AND COORDINATION WITH OTHERS 118

X. REFERENCES 189

MAPS

NOTE: Maps are available only as negative plates that cannot be reproduced by xerox. Since it would cost several hundred dollars to produce positive plates, whose only use would be in this review; maps are not included.

MAPS AND ILLUSTRATIONS

Page

1. Location Map 1
2. Access Routes 3
3. Volume 7
4. Cruising Units 8
5. Yarding System 9
6. Direction of Yarding 10
7. Land Ownership 13
8. Big Butte Area 17
9. Soil 19
10. Vegetation 27
11. Ethnographic and Linguistic Boundaries 52
12. Illustration I - Plants in the Big Butte Area 33
13. Illustration II - Wildlife in the Big Butte Area . . . 34

MAP

ACCESS ROUTES

Combine this map + page 13 map.

MAP
VOLUME

omitted

MAP
CRUISING UNITS

MAP
YARDING SYSTEM

MAP
DIRECTION OF YARDING

is shown on Map and . This should not, however, be construed as indicating precise locations of yarding trails or the precise direction of log travel.

Cutting boundaries are primarily located along timber-type lines. All proposed spur roads dead-end within the units. In general, their extension is precluded by topography, and logging of timber below the sale area will require construction of additional spurs from the main-line road. Future road development will somewhat be dependent upon the plans of adjacent landowners.

As in any timber sale, it is not feasible to specify every consideration that bears upon the sale operation in the contract. Skillful performance by a knowledgable contract administrator and cooperation between the administrator and the operator are essential components of a successful operation.

4. Public Use

The public presently does not have vehicle access to the area. Public use of the area will be allowed, but only after a Recreation Management Plan has been completed. The plan will provide the basis for determining what type and intensity of public use the area can support.

5. Right-of-Way Permit

Authorized ?

Issuing a right-of-way permit to Louisiana-Pacific Corporation will give them the right to construct a road across 4.7 miles of national resource land to harvest approximately 30 MM bd. ft. of privately-owned timber. The permit will require that the road be built on the location surveyed by the BLM, and will conform to all BLM road construction standards.

Since when is BLM in the Road Location Business

what are the standards ?

B. Location

The area, known locally as Big Butte, is about 160 miles north of San Francisco. Primary direct impacts of the proposed action will focus upon the proposed roadway and the 10,000 acres of BLM land located in T. 24 and 25 N., R. 12 W., M.D.M., which is from 12 to 18 miles north of Covelo, California. This is where the road improvement work, new road construction, timber harvesting and recreational use will take place.

The area is bounded on the north by the Six Rivers National Forest and on the east by the Mendocino National Forest and Lands owned by Richard Wilson. It is bounded on the south and west by lands owned by Louisiana-Pacific and Richard Wilson. Indirect impacts of the proposed action will be apparent in portions of these adjacent national forests and private ownerships; and in the case of socio-economic impacts, in Covelo and the Round Valley area. Big Butte, the prominent topographic feature which gives the area its name, is located in the northeastern portion of the BLM lands. The Yolla Bolly Wilderness Area lies generally to the northeast and is approximately two miles from the top of Big Butte (see Land Ownership Map, No. 2, for details.)

C. Timing

Project planning efforts began in 1966 and were to culminate in 1972 with road construction and a timber sale program. The proposed timber sale in the Big Butte area was included in the Ukiah District's fiscal year 1973 programmed cut. However, the sale offering date was not met due to the

MAP
LAND OWNERSHIP

need for preparation of an Environmental Impact Statement.

D. Management Interrelationships

1. U.S. Forest Service

The proposed action affects management of the adjacent private and national forest lands. The U.S. Forest Service and BLM considered constructing a road from Indian Dick Station into the Shinbone Ridge area and Big Butte, but they abandoned the project because of the presence of unstable soils and the ? excessive cost of needed bridge construction. The proposed BLM road may, therefore, become an integral part of the Forest Service system to harvest the Shinbone Ridge timber, even though it might be possible to extend the Four Corners Rock road (see map No. 3) to remove this timber. However, an extension of the Yolla Bolly Wilderness Area into the Shinbone Ridge area is being considered. If this occurs, timber in the Shinbone Ridge area will not be harvested. ?

— Volume of timber? Timeframe of Harvesting

Not labeled on map

The Yolla Bolly Wilderness Area covers 111,000 acres in Tehama and Trinity Counties, within the Mendocino and Shasta-Trinity National Forests. The southwest boundary of the wilderness, in the vicinity of Big Butte, is along the Middle Fork of the Eel River.

The Forest Service lands adjacent to the Big Butte area were included in the recent inventory of roadless areas. The Chief of the Forest Service has issued a policy statement that, before initiating any activity that would change the character of a roadless area, an environmental impact statement shall be prepared. The lands on the Six Rivers National Forest

are included in the Red Mountain roadless area. Those on the Mendocino National Forest, north of the private lands near Henthorne Lakes, are included in the Shinbone Ridge area. Those south of the private ownership are part of the Castle Peak area.

The Forest Service and the Bureau have agreed to work together on a development plan for all federal land in the area. The Bureau has deferred development of national resource lands east of Bull Ridge until the Forest Service has finalized its plans for the Shinbone Ridge area.

2. Louisiana-Pacific Corporation

In 1960, Frank M. and Vivian Crawford (Crawford Lumber Company) purchased all of the merchantable timber located on Richard Wilson's Henthorne Lakes property (between BLM and the Yolla Bolly Wilderness Area). Subsequently, Louisiana-Pacific Corporation acquired this timber when they bought out Crawford Lumber Company in 1968.

Acres & Volume?

In July 1971, Louisiana-Pacific formally requested a right-of-way permit across 4.7 miles of national resource land so that they could log the above timber as well as timber on their fee-owned lands in Section 11 and 14, T. 25 N., R. 12 W., M.D.M. Louisiana-Pacific has an immediate need for this permit, since the cutting rights on the Henthorne Lakes timber, although paid for in full, will expire in 1975. Issuance of the permit has been delayed pending completion of this statement. Since the proposed action will have an effect on these plans, we have agreed to coordinate our efforts and consider each other's land management objectives.

method of harvest?

3. Richard A. Wilson

Mr. Wilson plans to develop his property based upon a study completed by Lord Tyrrell and Associates. The study suggests four types of uses; namely, a wilderness school, wilderness outings, private leased rights and recreation day use. Mr. Wilson has indicated that he prefers a combination of uses, preferably private leased rights in the Henthorne Lake area and day use east of the Eel River. Since the proposed action will have an effect on these development plans, we have agreed to coordinate our efforts and consider each other's land management objectives.

AREA MAP

II. DESCRIPTION OF THE ENVIRONMENT

A. Physical Environment

1. Physiography

The physiography of the Big Butte area is typical of the interior Coast Range. It is characterized by steep, strongly dissected mountains with sharp, narrow ridges and deep V-shaped drainages. Elevations of the national resource lands range from 3,500 feet to 5,922 feet (Big Butte).

The area is drained by streams flowing south and west into Hulls Creek, which eventually empties into the North Fork of the Eel River. Only one small area, north of Big Butte, drains east into the North Fork of the Middle Fork of the Eel. The Middle and North Forks of the Eel River begin flowing south and southeast, but their ultimate course is in almost the opposite direction. Springs and seeps are found throughout the area and water is relatively abundant in most drainages at lower elevations.

2. Soil and Geology

The area is largely underlain by sandstone and shale formations, with small area of schistose material scattered throughout. Hugo is the most predominant soil association. The remainder of the soils are classified as Hulls, Laughlin and Maymen associations. All of these soils are relatively stable in an undisturbed conditons, exhibiting only slight soil movement, but are susceptible to severe erosion when vegetative cover and litter are removed. Soils are mapped in Mendocino County,

MAP
SOIL

but only the southermost portion of Trinity County is mapped (Map 9).

The most common characteristics for each of these soil associations are as follows:

Hugo soils are found mainly on north-facing slopes, where microclimates are cooler and more moist than on other sites. Soil acidity is relatively high, a condition that generally favors the growth of coniferous trees. Even though Hugo soils are found on very steep slopes, they are relatively stable. When the natural vegetation and litter is removed, however, the erosion hazard may become severe.

Hulls soils are primarily associated with grasses and hardwoods and are unsuitable for commercial timber production. These soils are relatively stable, except for some of the more clayey areas that tend to slip occasionally. The Hulls soils contribute more silt to stream courses than do the Hugo soils because they are less permeable and tend to bake during the hot summer periods.

Laughlin soils, like the Hulls, are associated with grassland-oak types and are not suited for growing coniferous species. They are well-drained and moderately permeable. Erodibility is moderate under natural conditions, but increases as vegetation is removed and the soil surface exposed.

Maymen soils are associated with the chaparrel vegetative type. They are typically shallow and highly acidic. The soils are dry from mid-May or June until sometime in September. Permeability is moderate to moderately

rapid and the soils have a low water-holding capacity. Disturbed areas are susceptible to severe erosion.

Most of the rock types in the region are Franciscan formation sandstones, shales, conglomerates and schists. These rocks, since the time of their formation in an ancient sea, have been severly folded, faulted and crushed by mountain building activity. Round Valley is an example of a ground-water basin, formed in Franciscan rocks, as a result of downfaulting of large blocks and a partial filling of the depressions with alluvium and lake deposits.

3. Water Quality

Perennial streams in the immediate vicinity of the proposed timber sale and access road construction sites include Casoose Creek and Peterptor Creek. These, with others are tributary to Hulls Creek which in turn drains into the north fork of the Eel River.

The Franciscan geologic formation through which these streams flow contains a relatively low percentage of readily soluable minerals resulting in good to excellent water quality for all purposes. No point sources of pollution have been identified and by extrapolation the following range of values can be expected:

Specific conductance	140-190 microhmos
pH	7.5-8.0
Dissolved solids	90-160 mg/l
Bicarbonate	60-90 " "
Dissolved Oxygen	9-11 " "
Nitrate nitrogen	0-0.2 " "
Phosphate	0-0.3 " "
Alkalanity	50-80 " "
Hardness	50-80 " "
Coliform bacteria	0-300 colonies per 100 ml sample varying with the seasonal concentrations of resident big game and livestock grazing in the area.

Because of its near pristine condition, ground cover is sufficient to prevent appreciable overland sediment bearing flows. The heavily timbered Hugo soils have a ground cover of two inches of humic duff overlain by one or more inches of fir and pine needles providing national protection and an excellent filter field. Less heavily timbered areas, having a mixed stand of conifer and shrubs, oak, manzanita and ceanothus, have a similar cover protecting the soil from the erosive forces of rain drops and overland flow. On the other hand, the more clayey grassland soils, and particularly those underlain by metabasic rock, are highly susceptible to natural massive slipping.

Interim water quality objectives were established by the North Coast Regional Water Quality Control Board in June, 1971. The objectives provide that, insofar as they may be influenced by discharges of wastes originating from land management or cultural practices or from other human activities, the North Coastal Basin waters shall meet, among others, the following objectives:

a. Color: The color of the waters of the basin shall not be significantly increased above natural occurring background levels.

b. Turbidity: Turbidity shall not be increased more than 20 percent above naturally occurring background levels.

c. Bottom deposits: There shall be no bottom deposits other than of natural causes in the waters of the basin.

4. Air Quality

Because of its remoteness, the air quality in the Big Butte area is excellent. Private logging operations and vehicular traffic create some air pollution although the amount produced is minimal. Carbon monoxide, hydrocarbons and particulate matter are the main contaminants. Photo-chemical oxidants, sulfur oxides and radiological contaminants are generally not present in measurable quantities.

5. Climate

The climate of the Round Valley (Covelo) area can be characterized as moist sub-humid mesothermal with warm dry summers and cool moist winters. High summer temperatures are normal and the frost-free period averages 168 days.

Annual precipitation averages 50 inches, about 20% of which is winter snowfall. Winter temperatures range from 0° F. to 35° F., while summer temperatures vary from 45° F., to 85° F. Average summer temperatures, however, are somewhat cooler in the uplands of the Big Butte area than in Round Valley.

B. Biotic Components

1. Vegetation

The major vegetative classification, in terms of size, in the Big Butte area are the mixed-conifer forest and the chaparral types. Scattered grassy openings, often with an open canopy of oaks, are found throughout the coniferous type. Riparian species are found in thin stringers along the perennial streams.

There are no population inventories of vegetative species in the Big Butte area. The most common species, however, are listed in Illustration I on page 4. ~~Any threatened species of vegetation~~ O/C ~~(Smithsonian list)~~

a. Mixed-Conifer Type

Rotation age

The mixed-conifer type comprises 3,100 acres and is found mainly on the north aspects of ridges and on the flatter areas. The forest canopy is uneven-aged and two-storied. It is composed of an overstory of Douglas fir, ponderosa pine, sugar pine, white fir and incense cedar (listed in order of abundance) and an understory of white fir with some incense cedar. Other species found in the mixed-conifer type include black oak, bracken fern, buckbrush, manzanita and several species of brome.

b. Chaparral Type

The chaparral type, commonly found on ridgetops and on the shallower soils, is composed of many species, including scrub oak, ceanothus, manzanita, chamise, chinquapin, lupine, poison oak, yerba santa and whitethorn.

TYPE	USE BY WILDLIFE
▨ MIXED CONIFER (I) Young & Old Growth (Douglas-fir, Ponderosa pine, Incense cedar, White fir, sugar pine, ceanothus, prunus, rubus, rosa, berberis, juniperus, amelanchier, sympharicarpos	Deer bedding, resting area, Mountain quail, dove, habitat for buteo hawks, eagles, black bear, grey squirrel, small mammal nesting sites in old snags and large conifers, use areas by blue grouse.
▒ CHAPARRAL (II) (manzanita, chamise, ceanothus, holodiscus, quercus, cerkocarpus, madrone, buckeye, white thorn, mahogany)	Wildlife cover areas, staple deer browse areas, bear, bird use on manazinita berries, small mammal rodent use area, raptor prey hunting areas.
░ CONIFER-CHAPARRAL MIX (III) All of #I and II.	Combination of both uses I & II with the addition of "edge effect" to increase feed/nesting activities.
░ OLD GROWTH CONIFER (IV) (Ponderosa pine, Douglas-fir, incense cedar, sugar pine, berberis)	Deer bedding areas, bear activity areas, nesting habitat for small mammals, bobcat, skunk, bat, owl, raptors.
▧ OAK TREES, SHRUBS (V) (Quercus spp.)	Deer forage areas, mast crop areas, small mammals and bird use habitat, upland game, bird habitat (quail) when water is present.
⠿ WILLOW (VI) (Salex spp.)	Deer forage-cover, use area-small mammals, amphibian & reptile habitat.
⤢ UNUSED ACCES TRAIL & SURVEYED LINE (VII) (grasses, bromus, poa, ribes, black and white quercus, salex, ceanothus, wild raspberry, elderberry, berberis, sedges, rushes)	Excellent concentration areas for all wildlife - Mountain quail, deer, bear, small mammals, terrestrial predators, raptors, valuable feeding area.
▧ TIMBER SALE AREA (VIII) (Conifer I & IV)	Conifer - I & IV
● WATER-SEEPS/SPRINGS (IX) (undeveloped along jeep trail & surveyed line)	Concentration areas for quail, small mammals, deer-predators, rodents, bear, amphibians & reptiles.

c. Grass Type

The vegetation of the grassy glade areas includes blue wildrye grass, squirrel tail, June grass, needle grass, wild rose, lupine and several bromes.

2. Animals

Many animal species are either known or suspected to inhabit the Big Butte area. Additional field surveys were made in the Big Butte area during the summer season. Three ridges were inspected for raptor nesting activity and wildlife observations were recorded. Vegetative species along the proposed access road were inventoried (Map).

The timber sale units contain dense old-growth stands of pine, incense cedar, and fir. Several trees were observed, that were used by mammals for nesting. Wildlife activity was observed within the dense conifer stands. Bear scratches on tree trunks and earth scrapes were common. It was possible to walk to within 25 ~~years~~ yards of two bucks, and several grey squirrels were observed.

The existing jeep trail, through sections 35 and 26, is little-used by vehicles and contains many seeps and springs which provide water for deer, small mammals and birds. At least four mountain quail coveys are maintained along the trail, because of the water sources, which last through the summer. The trail area supports a variety of vegetation including grasses, sedges, rushes and willows. Wild raspberries and elderberries are common at wet sites along the trail.

MAP
VEGETATION

These shrubs are a food source for birds, small mammals, deer and bear.

Raptors observed included redtail hawks, golden eagle, sparrow hawk, great horned owl and Swainson's hawk. The three main ridges, that lie east of the proposed road were surveyed. No raptor nests were observed. The rock comprising the ridgetops is fractured and crumbly,and provides few sites for successful nesting. Use of these ridgetops for perching by raptors was evident however. Raptor use of the general area is extensive. The watershed basin to the west contains many open-meadow area and watercourses such as Casoose Creek, Red Rock Creek, and Peterptor Creek that provide access to prey species. Raptor nesting activity was probably completed at the time of the survey and the chances of observing the increased food gathering activity associated with nesting were lessened.

Recent predation on mountain quail was observed. Coyote scat was common along the trail.

The area presently affords a "wilderness" type habitat because of its remoteness and the relative absence of human activity. This is evidenced by the presence of black bear and golden eagles and the suspected presence of the mountain lion.

The actual number of species inhabiting the Big Butte area is not known and no population studies have been conducted in the immediate area. The following estimates have been made for deer and upland game

birds, based upon the California Fish and Wildlife Plan, Volume 3, Part A, California Department of Fish and Game, 1965. Not enough data is available to make population estimates for some of the other animal species. The black-tailed deer population in the Big Butte area is about 40-50 deer per square mile. The population of upland game birds (grouse and quail) varies from 10 to 100 per acre - 10 per acre in the chaparral type of 100 per acre in riparian types. The most common species in the Big Butte area are listed in Illustration II on page .

~~Any threatened or RARE species?~~

Wildlife concentration areas are located along the coniferous forest-chaparral ecotone and within the glade and riparian areas.

a. Mammals

Black=tailed deer inhabit all vegetation types in the Big Butte area at some time duirng the year. They are year-long residents but migrate altitudinally from December through March, from the 5,500 feet to 3,500 feet elevations. The migration is reversed in the spring, commencing with snow=melt and greenup. Glades and south-facing slopes are preferred for summer use and fawning area. The chaparral-brush types are heavily used for browsing. Within the matrix of conifer, chaparral and woodland grass types, the conifer stands provide cover, shade and bedding for deer. Many such bedding-resting areas were seen.

The black bear's primary habitat is the coniferous forest, but it also depends upon the chaparral type for a large proportion of its food requirements. It is generally secretive and, while fairly

tolerant of man, conflicts easily occur.

The mountain lion, on the other hand, requires an area remote from human presence. It is strongly territorial, secretive and wide-ranging, and is almost completely intolerant of man.

A variety of small mammals inhabit the Big Butte area. The diversity of habitat conditions present provides the requirements for many species. One of the most abundant, the grey squirrel, is found throughout the forested area. Since they are very dependent upon acorns, they are most closely associated with those areas where black oak constitutes a greater proportion of the forest canopy.

b. Birds

Blue grouse can primarily be found in the coniferous type, often concentrated near springs, seeps and other wet areas. They are particularly dependent upon luxuriant herbaceous vegetation for nesting cover.

Both mountain and valley quail are found in the area. Mountain quail are more specific to the coniferous forest, but both species intermix throughout the area. Both species prefer the glades and area of disturbed soil, where seends are plentiful. Chaparral vegetation provides required cover.

Mourning dove and pigeons are common and both prefer areas where the soil has been disturbed and seeds are abundant.

Bald eagles have been observed in the area in the past. They are generally intolerant of human intrusions, require tall snags, flat-topped trees, or cliff areas for nesting, and are dependent upon streams containing fish and streamside snags (for perching and observation). Bald eagles have been rarely observed in the area except in the fall. It is doubtful that they nest in the area.

The golden eagle, while more adaptable to human presence than the bald eagle, often suffers a reduction in nesting and hatching success when subjected to human contact. It, too, requires snags or tall flat-topped trees for nesting, perching and observation. The golden eagle has been observed in all seasons and it is reported that they do nest in the Big Butte area.

Most of the hawks, observed in the area, require habitat similar to the golden eagle.

c. Fish

All of the larger streams flowing from the Big Butte area are tributary to the North Fork of the Eel River which supports anadromous runs of winter steelhead. Hulls Creek is the largest of these tributaries and would be most affected by the proposed action. It contains steelhead spawning and rearing habitat from its mouth up to a 30-foot waterfall that forms a barrier near the headwaters. The presence of great blue herons and mergansers along the Eel River and Hulls Creek indicates that substantial populations of fish are present in both streams.

A four-mile section of Casoose Creek, up to a series of falls below Antone Creek, also provides steelhead habitat. The remainder of Casoose Creek, as well as Lynch Creek, Peterptor Creek and Red Rock Creek support resident populations of rainbow trout. Except for Hulls Creek, the predominant use of Big Butte's tributaries is by resident trout.

3. Rare and Endangered Species

There are no known rare and endangered vegetative species in the Big Butte area and the only known rare and endangered wildlife species is the bald eagle. Although bald eagles have been observed in the area, their population is unknown at this time. No bald eagle nesting sites have been found.

ILLUSTRATION I

PLANTS IN THE BIG BUTTE AREA

COMMON NAME	SCIENTIFIC NAME
Black oak	Quercus kellogii
Blue wildrye grass	Elymus glaucus
Bracken fern	Pteridium aquilinum
Bur clover	Medicago hispida
California laurel	Umbellaria californica
Canyon liveoak	Quercus chrysolepis
Chamise	Adenostema fasciculatum
Deer brush	Ceanothus integerrimus
Douglas-fir	Pseudotsuga menziesii
Digger pine	Pinus sabiniana
Filaree	Erodium sp.
Golden chinaquapin	Castanopsis chrysophylla
Gooseberry	Ribes Roezlii
Incense cedar	Libocedrus decurrens
Interior liveoak	Quercus wislizenii
June grass	Koleria cristata
Knobcone pine	Pinus attenuata
Lupine	Lupinus sp.
Mountain mahogany	Cercocarpus betuloides
Madrone	Arbutus menziesii
Manzanita	Arctostaphylos manzanita
Needlegrass	Stipa spp.
Oceanspray	Holidiscus discolor
Pacific dogwood	Cornus nuttallii
Poison oak	Rhus diversiloba
Ponderosa pine	Pinus ponderosa
Red brome	Bromus rubens
Ripgut brome	Bromus rigidus
Rush	Juncus sp.
Scrub oak	Quercus dumosa
Sedge	Carex sp.
Soft chess	Bromus malus
Squirreltail	Sitanion hystrix
Sugar pine	Pinus lambertiana
Tanoak	Lithocarpus densiflora
Tarweed	Madra spp.
Wedgeleaf ceanothus	Ceanothus cuneatus
White fir	Abies concolor
White oak	Quercus lobata
Whitethorn	Ceanothus incanus
Wild oats	Avena barbata
Wild pea	Lathrus spp.
Wild raspberry	Rubus idaeus
Wild rose	Rosa sp.
Yerba santa	Eriodictyon californicum

ILLUSTRATION II

WILDLIFE IN THE BIG BUTTE AREA

COMMON NAME	SCIENTIFIC NAME
BIG GAME	
Black bear	*Ursus americanus*
Black-tailed deer	*Odocoileus columbianus*
Mountain lion	*Felis concolor*
UPLAND GAME	
Band-tailed pigeon	*Columba fasciata*
Black-tailed jackrabbit	*Lepus californicus*
Blue grouse	*Dendragapus obscurus*
Brush rabbit	*Sylvilagus bachmani*
Gray squirrel	*Scriurus griseus*
Mountain quail	*Oreortyx pictus*
Mourning dove	*Zenaidura macroura*
Turkey	*Meleagris gallopavo*
Valley quail	*Lophortyx californicus*
OTHER BIRDS	
Anna's hummingbird	*Calypte anna*
Bald eagle	*Haliaeetus leucocephalus*
Black swift	*Cypseloides niger*
Belted king fisher	*Megaceryle alcyon*
(Black-eared) Pigmy nuthatch	*Sitta pygmaea*
Black-throated gray warbler	*Pendroica nigrescens*
Brewer's blackbird	*Euphagus cyanocephalus*
Cooper's hawk	*Accipiter cooperii*
Calliope hummingbird	*Stellulu calliope*
(Cabanis) Hairy woodpecker	*Dendrocopos villosus*
(Common) Cliff swallow	*Petrochelidon pyrrhonota*
Clark's nutcracker	*Nucifraga columbiana*
Common bush-tit	*Psaltriparus minimus*
(Cassin) Solitary vireo	*Vireo solitarius*
Common merganser	*Mergus merganser*
(Calaveras) Nashville warbler	*Vermivora ruficapilla*
(California) Purple finch	*Carpodacus purpureus*
Cassin's finch	*Carpodarcus cassinii*
Dipper	*Cinclus mexicanus*
(Dusky) poor-will	*Phalaenoptilus nuttallii*
Great-horned owl	*Bubo virginianus*
Great blue heron	*Ardea herodias*
Green-tailed towhee	*Chlorura chlorura*
Goshawk	*Accipter gentilis*
Golden eagle	*Aquila chrysaetos*
Hammond's flycatcher	*Empidonax hammondii*
Hermit warbler	*Dendroica occidentalis*
Killdeer	*Charadrius vociferus*
(Lutescent) Orange-crowned warbler	*Vermivora celata*

COMMON NAME	SCIENTIFIC NAME
Lazuli bunting	Passerina amoenia
MacGillwray's warbler	Oporornis tolmiei
Monterey hermit thrush	Hylocichla guttata slevini
Mallard	Anas platyrhynchos
Mountain bluebird	Sialia currucoides
(Montane) Lincoln's aparrow	Melospiza lincolnii
(Northern) White-headed woodpecker	Dendrocopos albolarvatus
(Northern) Western flycatcher	Empidonas difficilis
(Northern) Violet-green swallow	Tachycineta thalassina
(Northern) Purple martin	Progne subis
(Northern) Chestnut-backed chickadee	Parus cufescens
(Northern) Rock wren	Salpinctes obsoletus
(Northern) California thrasher	Toxostoma rediuivum
(Northern) Townsend's solitaire	Myadestes townsendi
(Northern) Pine siskin	Spinus pinus
Olive-sided flycatcher	Nuttallornis borealis
Pileated woodpecker	Dryocopus pileatus
(Pallid) wren-tit	Chamaea fasciata
(Pacific) Audubon's warbler	Pendroica auduboni
(Pacific) Black-headed grosbeak	Pheucticus melanocephalus
Rufous hummingbird	Selasphorus rufus
Red-tailed hawk	Buteo jamaicensis
Red-shafted flicker	Colaptes cafer
Raven	Corvus corax
Red-breasted nuthatch	Sitta canadensis
Red crosbill	Loxia curvirostra
Robin	Turdus migratorius
Sharp-skinned hawk	Accipiter striatus
Sparrow hawk	Falco sparverius
Screech owl	Otus asio
(Sierra) Yellow-bellied sawsucker	Sphyrapicus varius
Steller's jay	Cyanocitta stelleri
Scrub jay	Aphelocoma coerulescens
(Short-tailed) Mountain chickadee	Parus gambeli
(Slender-billed) White-breasted nuthatch	Sitta carolinesis
(Sierra Nevada) Brown creeper	Certhia familiaris
(San Joaquin) Bewick's wren	Thryomanes bewickii
(Sacramento) Spotted towhee	Pipilo erythrophthalmus
(Sierra Nevada) Oregon junco	Junco oreganus
Townsend's warbler	Dendroica townsendi
Turkey vulture	Cathartes aura
(Willow) Downy woodpecker	Dendrocopos pubescens
Western kingbird	Tyrannus verticalis
Wright flycatcher	Empidonax oberbolseri
Western wood pewee	Contopus sordidulus
(Western) House wren	Troglodytes aedon

COMMON NAME	SCIENTIFIC NAME
Western (Mexican) bluebird	*Sialia mexicana*
(Western) Golden-crowned kinglet	*Regulus satrapa*
(Western) Warbling vireo	*Vireo gilvus*
Western tanager	*Piranga ludoviciana*
(Western) evening grosbeak	*Itesperiphona vespertina*
Wilson's warbler	*Wilsonia pusilla*
Western meadow lark	*Sturnella neglecta*
(Western) lark sparrow	*Chondestes grammacus*
(Western) chipping sparrow	*Spizella passerina*
(Yolla Bolly) Fox sparrow	*Passerella iliaca*
OTHER MAMMALS	
Badger	*Taxidea taxus*
Bobcat	*Lynx rufous*
Coyote	*Canis latrans*
Gray fox	*Urocyon cinereoargenteus*
Raccoon	*Procyon lotor*
Mink	*Mustela vison*
Spotted skunk	*Spilogale putoris*
Striped skunk	*Mephitis mephitis*
California ground squirrel	*Citellus beecheyi*
Townsend chipmunk	*Eutamias townsendi*
Valley pocket gopher	*Thomomys bottae*
Porcupine	*Erithizon dorsatum*
Western harvest mouse	*Reithrodontomys megalotis*
Deer mouse	*Peromyscus maniculatus*
Brush mouse	*Peromyscus boylei*
Pinon mouse	*Peromyscus truei*
California vole	*Microtus californicus*
Pacific jumping mouse	*Zapus trinotatus*
Long-tailed weasel	*Mustela frenata*
AMPHIBIANS AND REPTILES	
Northern pacific rattlesnake	*Crotalus viridis*
Western aquatic garter snake	*Thamnophis couchi*
Western terrestrial garter snake	*Thamnophis elegans*
Common garter snake	*Thamnophis sirtalis*
Pacific gopher snake	*Pituophis melanoleucus*
Common kingsnake	*Lampropeltis getulus*
Western yellow-bellied racer	*Coluber constrictor*
Alligator lizard	*Gerrhonotus spp.*
Western skink	*Eumeces skiltoneanus*
Western fence lizard	*Sceloporus occidentalis*
Western pond turtle	*Clemmys marmorata*
Red-legged frog	*Rana aurora*
Bull frog	*Rana catesbeiana*
Foothill yellow-legged frog	*Rana boylei*
Pacific treefrog	*Hyla regilla*
Ensatina (salamander)	*Ensatina spp.*

Entire section reads like a text book

C. Ecological Interrelationships

Relate Plant/Animal/human communities and the dependency of each on the other

Ecosystems can be defined by describing their physical and biotic components and by studying the dynamics of ecosystem function. In considering ecological interrelationships, we focus on those processes which express the interaction of system components and the changes in the system which occur over time.

The ecosystem must be examined from a diachronic orientation. This presents a problem in analysis, because we are accustomed to employing a synchronic or static approach, which describes a given phenomenon at a given time. Ecosystems respond, however, to both present and past events, and a specific system is defined in part by its history. The identification of dynamic patterns is usually based upon time series analysis, requiring a program of data collection at regular intervals over an extended period of time. In Big Butte, we lack this continuity of data, so it is necessary to extend our essentially static observations to form broad hypotheses of trends in biotic composition and system function. Due to the limitations of this approach, establishment of an intensive monitoring program is essential to tracing environmental impacts over time and space.

The relationships between system components, expressed as rates of flow of energy, water, and nutrients, change diurnally, seasonally, and over long-term climatic cycles. When the environment changes so that there is an increase in soil fertility, a decrease in light intensity, or other modification, there may be replacement of some com-

ponents of the ecosystem by others that are relatively better adapted to the changed conditions. As these changes usually progress through successive recognizable stages, it is possible to trace the development of the community toward a climax state. This climax state can be expected to persist until there is a change in environmental conditions, leading to reversion to a more seral state of development.

In the Sierras, the Mixed-Conifer Zone occupies an intermediate elevational position between the Ponderosa Pine Zone and the True-Fir Zone. In the coast range, however, the Ponderosa Pone Zone is absent and the Mixed-Conifer Zone grades directly into the Chaparral Zone, which is composed primarily of sclerophyll shrubs, at lower elevations. This appears to be the case at Big Butte.

Successional relationships in the Big Butte area are not completely understood. Brushfields frequently develop on burned or logged-over forest sites, slowing the rate of succession and, with repeated burning, forming long-term sub-climax communities. The chaparral and forest communities are often fire-induced seral types. With repeated burning, conifers are often eliminated and shrub density increased (most shrub dominants either sprout after fire, or produce seed which remains viable for long periods of time and is not destroyed by fire). In other areas, particularly where available moisture during the summer growing season is limiting, the chaparral type is probably climax. Chaparral is likely to be climax on the shallow Maymen soils and along some of the ridgetops in the area.

Ponderosa pine is usually seral, but it may become climax on poorly drained or extremely xeric forest sites. Sugar pine is also seral, but is very long-lived. Douglas fir is normally seral, except on xeric sites, where it may form a climax association with incense cedar. White fire is the most shade tolerant conifer in the area and dominates the understory. Therefore, if environmental conditions remained static, it would probably become the dominant climax species. An incense cedar-white fire association would appear to be climax on the more mesic sites in the area. As mortality increases in the overstory, which mainly consists of the less tolerant pines and Douglas fir, it would appear likely that the proportion of more tolerant species will increase.

The mixed-conifer type is closely related to the incidence of fire (It has often been said that increased fire protection has accelerated successional development). In the Big Butte area, this would indicate a more rapid movement toward a white fir climax. However, the possibility of fire occurring during the course of a 100-200 year rotation is still relatively high. The average acreage burned on the Ukiah District is 6000 acres per year. Total national resource land acreage is about 530,000 acres. If one-half of the annual burned acreage is on land where fires have previously occurred, a fire could be expected on the remaining acreage about once in every 180 years. There is, therefore, a good chance that some stands will revert to seral successional stages, and that the Big Butte area will continue to represent a mixed-species, uneven-aged mosaic.

% composition of the entire stand.

An increase in the bark beetle population has been observed in the Big Butte area. Aerial surveys, conducted in August of 1972, showed that the number of beetle-killed pine had tripled in two years. An estimated 4 to 5 percent of the pine timber had been affected. Two factors appear to be contributing to increasing mortality - below normal precipitation, and the lack of vigor of the over-mature pine. Experience in the Sierra-Nevada indicats that continued drought could lead to severe moisture stress and trigger an epidemic that might kill as much as 70% of the pines. It is not certain that this would result in dominance by the more tolerant species. It is also possible, that a bark beetle epidemic might open the stand sufficiently to allow establishment of some of the more intolerant tree species, thus maintaining the mixed conifer type. If die-off of the pines was sufficiently great, there is a strong possibility that white fir mortality due to sunscald would increase. In any event, it is problematical whether the more suppressed white fir would respond to release.

If a trend toward climax is established, we would anticipate a decrease in the absolute quantity and variety of understory vegetation, because of changes in the amount of light reaching the forest floor and changes in micro-climate. These changes would generally be less favorable to animals.

In some of the grassy glade areas, there is evidence of encroachment by conifers around the margin. There is some evidence to indicate that this encroachment is a result of heavy consumption of the herbaceous

vegetation by animals, which contributed to lowering of the water table and increase the relative ability of the trees to become established and compete for moisture and nutrients.

The functions of the ecosystem can be summarized into three processes -- energy flow, the nutrient cycle, and the hydrologic cycle.

1. Energy Flow

Several years of study would be needed to define the parameters of ecological processes in the Big Butte ecosystems. At this point, all we are able to do is generalize about the relationships between system components, however, detailed examination of specific processes is not absolutely necessary to impact evaluation.

Almost all energy enters the ecosystem as sunlight, but only 1% of the light that falls on the system is converted by green plants into chemical energy. The remainder is reflected, transmitted through leaves, or dissipated as heat.

The chemical energy,or food, is subsequently transported through plant tissues and the tissues of consumer and decomposer organisms. Within each group, some of the chemical energy is used for bodily process, growth, reproduction, and movement. The chemical energy is converted to heat energy, through respiration. Some energy is removed from the system by consumer organisms, by fires and by the removal of biotic components by man.

Once energy is converted from a stored form (food or body tissue) to an active form (heat), it becomes an output from the system. The ecosystem is dependent upon a continual input of solar radiation.

2. Nutrient Cycle

The producer role in the system is filled by food-manufacturing vegetation (autotrophs), which concert inorganic chemicals to a simple form of sugar (glucose), through the process of photosynthesis. These simple sugars are then converted by plants and animals into more complex carbohydrates, proteins and fats.

These nutrients then cycle through the system; through first and second-order (predators and parasites) consumers and decomposers. The decomposers convert the complex organic tissues back into inorganic substances, including nitrogen, potassium, phosphorous and calcium. They are when taken up by the plants through their root systems, beginning the cycle again, or are stored in the soil. Nitrogen may be returned to the atmosphere, where it becomes available to nitrogen-fixing plants.

Forests are unique, when compared to other ecosystems, in that a large proportion of nutrients are stored in vegetation for relatively long periods of time before being made available to other organisms. Forest ecosystems cannot be visualized as simple food chains. A high percentage of the total biomass is cycled directly from producer to decomposer, or is consumed by fire.

3. Hydrologic Cycle

Both the nutrient cycle and energy flow are regulated, to a large extent, by the hydrologic cycle, which controls the availability of nutrients to plant roots, the rate of movement of nutrients through the plant, the decomposition of plant litter, and the development of the soil profile.

D. Land Use

Livestock grazing and a limited amount of recreation are presently the predominant uses made of the national resource lands in the Big Butte area. There are no economically valuable deposits of minerals in the area.

% utilization ?

Sheep ? Cows ? horses ?

1. Livestock Grazing

One grazing lease, issued to Richard Wilson, authorizes 1,003 AUM's (animal unit months) of use on 5,015 acres in the Big Butte area. Although a 12-month season of use is authorized, present use is confined to the summer months and is relatively light. The lease area is apparently used as a bridge between the lessee's private holdings which adjoin the national resource land on the south and east. The areas suitable for grazing are confined to the scattered grass openings and understory shrubs, forbs and sparce grass cover found beneath the timber overstory. Other openings along the brush ridges are characterized by unstable soils that lack fertility.

2. Recreation

There is presently no legal public access into the Big Butte area from the south and west, and all physical access for motor vehicles crosses private land. There is trail access from the National Forest, but these routes are seldom used because the trails are not maintained and are difficult to locate and follow.

The Big Butte area does have considerable potential for outdoor recreation. Hunting (for bear, deer, quail, dove, pigeon and grouse) is one of the more important potential uses.

Family camping has been increasing at the rate of 10% a year over the past three years on the adjacent Mendocino National Forest. Big Butte contains two potential sites for campground development. Winter sports potential and suitability for off-road vehicle (ORV) use are very limited and these will probably not become important uses of the public lands.

The Big Butte area lies within two miles of the Yolla Bolly Wilderness. The presence of an existing jeep trail detracts from the wilderness quality of the area, but portions of the Big Butte area offer some potential for providing a wilderness experience. Present use of the Yolla Bolly is not as heavy as that experienced by most of the Sierra-Nevada Wilderness Areas, but is increasing.

Raises the question: Is wilderness characteristic of the area. Do you want to do this?

Either it does
OR it does not.

3. Timber

Timber on the public lands in the Big Butte area has not been harvested. However, timber harvesting is scheduled on the adjacent private lands and Big Butte possesses ~~considerable~~ potential for sustained yield forest management. Since allowable-cut is computed for the entire Ukiah District, no data are available for this specific area.

The timber stands in the Big Butte area are uneven-aged and two-storied. The overstory timber is overmature (200+ years), and is characterized by flat-topped crowns, sparse foliage and broken tops. The annual loss to mortality is about equal to annual increment. Trees in the understory vary from 3 to 23 inches in diameter and range up to 150 years in age.

The timber growing potential of the area has been determined to be Site Class III (site index 130), with an annual growth potential of 800 to 1000 board feet per acre. Stocking in some stands is up to 400 trees per acre (normal stocking would be about 100 trees per acre). Yield is far below potential because of the stagnated condition of the understory.

Timber on Pvt. + F.S. ground
Tributary to the proposed road.?
Table which is missing may provide
some of this info. if not, should be prepared

Visitor Use of Yolla Bolly Wilderness
(Based on Traffic Counts on Entry Roads)

Road Name or Point of Access	Visitor Days	
Blands Cove from Covelo	1,000	(1)
Indian Dick from Covelo	29,000	(2)
USFS 27N07 East Low Gap	67	
USFS 29N15 from Corning, Tomhead	635	
USFS 29N15 from Corning, Rat Trap Gap	52	
USFS 28N10 from Hayfork, Stuart Gap	1,234	(3)
USFS 29N30 from Ruth, W. Low Gap	67	
USFS 29N30 from Ruth, Penny Ridge	37	
TOTAL	32,092	

(1) Use of the Blands Cove Road dropped off after the first year.

(2) Indian Dick includes all roads leading to the Yolla Bolly Wilderness from the south.

(3) Stuart Gap entrance station has two lakes for fishing nearby and this fishing use is included. Estimated that 60% of the use was by fisherman. No lakes are near the proposed Big Butte Road.

persistent unemployment.

Historically, extensive agriculture provided the impetus for settlement of the Round Valley area. Its remoteness from markets and supply sources, however, has largely determined the rate of agricultural development. Raising beef cattle is presently the primary farm activity.

F. Aesthetic Value

illustrate w/pictures of typical terrain

Seeing or visual perception is the primary component of aesthetic experience in the Big Butte area. The quality of the visual experience is affected by five landscape characteristics - topography, color, water, vegetation and visual intrusions.

Diversity and/or harmonious combinations of these characteristics plus lack of discordant influences are key factors affecting viewing interest.

Topography is normally more interesting as it becomes steeper and more massive. The area is comprised of moderately steep slopes; however, no land forms could be considered massive. Slope gradient has produced some of the more noticeable topographic features, such as stream courses and shale outcrops, but they occur only on a small scale. Compared to other features in the Klamath-Sisikiyou landscape province (which includes the Big Butte area), land form has moderate perceptual value.

what is the total size of the public lands?

4. Primitive Value

The Big Butte area could be managed for its primitive values. It exceeds the minimum size required for management as a primitive area and present impacts are limited to one "pioneer" road, which could be rehabilitated. Other criteria normally used in evaluating a primitive experience and the quality of such experiences in the subject area are as follows:

a. Opportunities for solitude - excellent

b. Opportunities for primitive types of recreation (hiking, horseback riding, camping, non-mechanized boating, wildlife viewing, fishing) - fair to good

c. Scenic quality - fair

The overall opportunities for a primitive experience are considered good on a poor-fair-good-excellent scale.

The existing primitive values are enhanced by the current status of public lands to the east and north of the subject area. Four areas are presently managed to maintain natural conditions:

a. Yolla Bolly Wilderness Area

b. Castle Peak Roadless Area - potential addition to wilderness; no development until final classification is determined.

c. Shinbone Ridge Roadless Area "

d. Red Mountain - Ant Hill "

E. Social Environment

In 1970, Mendocino County had a population of 51,101; there had been essentially no change from the last decennial count. Per-capita personal income averaged $2,916. This was about 80 percent of the statewide average income. Approximately 12 percent of the families in the county had incomes below the poverty level, while 29 percent had incomes over $12,000 per year.

Round Valley, with a 1970 population of about 1,500, reflects the county's lack of growth over the past ten years. About 3 percent of the people in the county reside in Round Valley and, of the valley residents, approximately 25 percent are members of the several Round Valley Indian tribes. Almost 60 percent of the valley residents fall into the young and elderly age groups which are outside the normal labor force.

Round Valley has been experiencing considerable out-migration in the age groups between 18 and 35, primarily due to a lack of job opportunities. Employment in the valley is concentrated in the manufacturing sector. The lumber and wood products industry employs over 200 people and comprises over 50% of total employment. Agricultural employment accounts for another 22 percent of employment. Both industries are seasonal and high unemployment is a continuing problem during the winter months. The Economic Development Administration has identified the area as having a problem of

— does this include logging?

Page 49 missing

Vivid color combinations or contrasts, oftentimes the most eye-catching feature of a landscape, are not too evident in the area. Some variety in color is created by the mixture of vegetative types, occasional periods of snow cover, and seasonal foliage changes. Other landscape components - soil, rock and water - are either drab or a minor part of the natural setting. The predominant greens, browns, greys and yellows are harmonious but relatively uninteresting due to lack of contrast. Vivid colors, such as orange, red, and white, do create contrasts, but only for short periods. Over the entire year, color is not an outstanding landscape feature.

Water, although present in small tributary streams at lower elevations, is a minor feature of the Big Butte landscape. Compared to large reservoir, lake and river areas, the water feature has low perceptual value.

Variation in vegetative patterns and texture is the primary landscape characteristic in the study area. The intermixture of conifer, hardwood, brush and grass types creates a constantly changing array of visual patterns. Two of the more interesting patterns are grassy glades interspersed in conifer stands and islands and streamers of tree growth in grass and brush areas. Natural vegetation occurs in uneven growth patterns, thereby adding an important element of texture to the landscape.

The other types of sensory perception - hearing, smelling,

touching and tasting - play a lesser but still important role in the Big Butte aesthetic experience. Visual perception is the primary aesthetic component in terms of initial impact and lasting affect, but other components such as odor provide depth to the immediate experience.

Animal calls and movement, wind movement, and water movement are the primary sound stimuli in the area. Odor is provided primarily through plant fragrance. Textures and forms associated with vegetation, soil, and rocks appeal to the sense of touch.

G. Cultural Values

On June 11 and 12, 1974 a preliminary archaeological reconnaissance of the proposed Big Butte Timber Sale was conducted by BLM personnel Herrick E. Hanks, Staff Archaeologist, California State Office, Desert Planning Staff; Roc Indermill, Ranger-Archaeologist, Riverside District, and Terry Woosley, Forester, Ukiah District. One
? historic site and three prehistoric sites were located during the preliminary survey. Recommendations from the preliminary archaeological assessment were that no further reconnaissance was necessary within the lower timber sale unit (Hanks and Indermill 1974:32) but that a more intensive archaeological investigation be conducted in the upper timber sale unit. A survey conducted in response to these recommendations resulted in the following findings.

MAP
ETHNOGRAPHIC AND LINGUISTIC BOUNDARIES

10

1. Ethnographic Background

The timber sale project encompasses an area that has been attributed to the ethnographic Wailaki and Yuki linguistic groups (see Map). The three subdivisions of the Athabascan speaking Wailaki occupied lands near the North Fork and the main Eel River north of Round Valley to Humboldt County (Goddard 1923:95). Most of the project area is located in territory attributed to the Pitch Wailaki, a politically separate group of Wailaki who shared the same language and ways of life (Goddard 1924) and lived along the North Fork of the Eel River, Hulls Creek, Casoose Creek, and its tributaries. Frequent warfare, marriage, and occasional exchange of goods are reported (Powers 1877, Foster 1944) to have taken place between the Wailaki and the Yuki. The Yukian speaking peoples of Round Valley were a linguistically and physically distinct group and are thought to have been the most autochthonous group of California Indians (Kroeber 1925:159). Their village groupings were located in Williams, Round, Poorman's, Eden, Rodeo, and possibly Hulls Valley. Although the Wailaki and Yuki were distinct and separate cultures they had somewhat similar subsistence adaptations characteristic of hunting and gathering groups. The spring and summer months were spent exploiting the available resources in the higher elevations: Gathering of seeds and berries, digging for roots, and hunting were main activities. During the fall energies were directed toward food processing and increasing food stores in anticipation of winter months. Previously

dispersed groups or families reunited in permanent winter villages which were usually in lower elevations situated near watercourses. Fishing, an important year round activity was intensified during winter months. Religious and ceremonial activities were emphasized during the cold season. A large common dance house usually built for the village chief was utilized by one or more villages for dancing, religious ceremonies, and sometimes for sweating. A village usually had from two to twenty dwellings of circular, conical brush covered structures built over shallow, circular depressions. Wailaki and Yuki villages were grouped into larger political units based primarily on geographical proximity and usually named after prominent geological features. Goddard (1924) surveyed Wailaki territory between 1901 and 1906 and presents a fairly detailed account of subdivisions and village locations, especially of the Pitch Wailakis. Edwards (1966) presents a summary of ethnographic accounts of Yuki subdivisions and their village locations. Although the Yuki were relatively well documented ethnographically, i.e., Kroeber (1925), Essene (1942), Foster (1944); the Wailaki are less well known. Brief references can be gleaned from the previous accounts as well as from Loeb (1934).

2. Previous Archaeological Research

Although there have been no published accounts of recent surveys in Wailaki territory several (Treganza, Smith, and Weymouth 1950, Edwards 1966, and King 1966) have been conducted in Round

Valley and adjacent Yuki areas. Sites that seem to be representative of the ethnographic Yuki were located as well as archeological manifestations that possibly represent occupation by earlier groups. However, due to the paucity of archaeological investigations in the North Coast Ranges little is known of earlier social and environmental relationships. The Central California chronological sequence (Lillard, Heizer, and Fenenga 1939, Beardsley 1948, 1954) provided the temporal framework for cultures in the North Coast Ranges until Meighan's investigations of CA-Men-500 in 1951. Recently Meighan's (1955) chronology was revised by Fredrickson (1973) who proposed a temporal/cultural framework for understanding the cultural diversity in the North Coast Ranges (and regions of the lower Sacramento Valley and San Francisco Bay) during the Early and Middle period (3000 BC - 200 AD) span in the Central California region. A brief summary of Fredrickson's (1974) cultural sequences follows:

a. The Palaeoindian Period (ca. 10,000 to 6,000 BC) represented by the provisional Post Pattern was an economy of hunting and lacustrine subsistence activities. Fluted projectile points and crescents are attributed to this period. There is little evidence of the use of milling implements during this period.

b. The Lower Archaic Period (ca. 6,000 to 3,000 BC) and Upper Archaic Period (ca. 3,000 BC to AD 300) are represented by the Borax Lake Pattern which terminated about 500 BC. The culture of

~~this period is oriented to seed collecting and processing and hunting. Diagnostic artifact forms include milling slabs and handstones plus large projectile points. During the latter part of the Upper Archaic Period the Houx Aspect (ca. 500 BC) replaced the Borax Lake Pattern. The Houx assemblage indicates a shift to mortars and pestles for acorn processing replacing the milling stones used for seed processing. Hunting remained important as indicated by the presence of large leaf shaped projectile points.~~

~~During the Emergent Period (ca. AD 300 to AD 1800) the Clear Lake Pattern developed. Hunting and acorn collecting remained important economic activities, however, technological shifts are indicated by the replacement of the bowl mortar with the slab mortar and basket hopper plus small projectile points associated with the bow and arrow.~~

Based on the previous data a settlement system (triblet?) appears to be indicated in the Big Butte area by village sites and task-specific sites such as hunting camps, food processing stations, quarries and manufacturing stations, and magico-religious sites.

3. Research Potential

The archaeological sites located within the Big Butte Timber Sale area (see below) appears to be representative of a time span from the Lower Archaic Period to the Emergent Period. However, diachronic and synchronic perspectives on adaptation can only be

inferred from the accumulated surface surveys and comparative data from investigations in adjacent areas, i.e., Childress and Chartkoff's survey (1966) of Huchnom territory. The archaeological sites in the Big Butte project area possess potential data to test and generate hypothesis concerning the following problems:

a. The time of the earliest occupation and type of adaptation.
b. The relationship between archaeological culture patterns and attribution to tribal groups.
c. Methods of resource utilization and concomitant political organization and religious structures.
d. Interrelationships of the Yuki and Wailaki including exchange relationships, warfare, and settlement patterns in relation to culture boundaries.

The areas to be affected by the Big Butte project are especially important to researchers. The varied terrain and range of exploitable resources provide a unique opportunity to address the problems previously stated. The archaeological sites recorded during the present survey (see below) possess the potential to contribute to our knowledge of adaptive patterns in an ecological setting requiring a flexible subsistence economy in this locality of the North Coast Ranges archaeological region. The archaeological sites recorded in the project area including those not visited by the writer but

known to have previously existed (cf. Goddard 1924), will be nominated to the National Register of Historic Places in accordance with the National Historic Preservation Act of 1966 and Executive Order 11593.

4. Survey Strategy

Shorten

A mixed strategy reconnaissance (cf. King et al. 1973:9-10) was necessary to investigate the project area and areas of indirect impact. The Upper Timber Sale is densely forested and the surface is usually covered by heavy ground fall and a thick layer of duff. A general surface reconnaissance was made of all accessible and visible surfaces within the timber sale, except for steep slopes and dense forests. About half of the sale is on flat or gently sloping ground, and occasional clearings or glades occur in this part of the dense timber. All clearings and glades were intensively surface surveyed. A complete reconnaissance was conducted in the level area of the timber sale and along its creek banks and ridges. Additionally, occasional checks of the surface under the duff were made by clearing away small portions with a trowel.

A general reconnaissance was made of accessible areas to be directly or indirectly impacted by the proposed access road. Most of the proposed road is located in areas of dense timber or brush and usually on slopes varying from 40 to 80 percent. The entire right-of-way corridor of the existing road was generally surveyed although reconnaissance was hampered in places where the road was

located on steep slopes, in dense forest or brush, and where there was thick layer of duff. Intensive surface reconnaissance was conducted at creek banks, along ridges and on level or flat open areas along the right-of-way.

Shorten

Maps and aerial photographs were consulted to aid in planning the survey strategy. Aerial reconnaissance expedited access into areas of the proposed access road and portions of indirect impact areas. The aerial reconnaissance included Big Butte, Bull Ridge, Little Butte, and Foot of Bull Ridge. An aerial reconnaissance was also made along the course of Antone Creek to Casoose Creek then along Red Rock Creek and Peterptor Creek. A limited general surface survey was conducted at Antone Creek to Casoose Creek to 1/2 mile south of where it is joined by Lynch Creek. Lack of time and personnel did not permit complete inspection of the Antone Lake drainages although there are ethnographic accounts of villages along the creeks (Goddard 1923, 1924). Finally a limited general surface survey was conducted from the mouth of Hulls Creek to about 1/8 of a mile above where it intersects Casoose Creek.

5. Survey Results

Description of Archaeological Resources

During the course of the survey twenty-two prehistoric sites and one historic site were located within the proposed Big Butte Timber Sale project and adjacent areas. Of this total six sites are

located within or near the edge of the Upper Timber Sale; five sites are located in the area of the proposed access road which runs from the Upper Timber Sale to Bull Ridge; ten sites are located along or near the existing access road from the south edge of the Lower Timber Sale to where Highway 162 and the existing access road intersect; and two sites are located near the mouth of Hulls Creek. All sites were given field numbers and most sites were named. They were additionally assigned permanent trinomial site designations by the Department of Parks and Recreation, State of California. Limited time and personnel did not allow for test excavations to provide data on depth of sites. Ownership data on the recorded cultural values are presented in table.

Sites Located Within or Near the Upper Timber Sale

Big Butte 1 (CA-tri-210) This site is located along the southwest edge of a large glade about 1/4 mile west of a ridge running northwest from Big Butte at about 5100 feet elevation (see Map 4). Visible surface material includes chipped stone tools, hundreds of chert flakes and a midden deposit possibly one meter in depth. The material is indicative of a manufacturing site or seasonal village possibly representative of the Wailaki. Presently the site is affected by cattle grazing.

Big Butte 2 (CA-tri-211) This site is located approximately 200 meters west and downhill from Big Butte 1 in a large clearing with a spring-fed marsh in the south end on the edge of a dry creek near 5000 feet

elevation (see Map 4). There is an extensive amount of chipped stone manufacturing debris over the entire clearing with a concentration of debitage in a 50 meter square area in the northwest part of the site. Three chert projectile point fragments, a scatter of utilized flakes and cores, plus at least two pestle fragments were observed. There is a deposit of darkened soil in the marsh area of the glade which could be due to spring deposits rather than living refuse characteristic of midden deposits. Based on the artifacts observed this appears to be a tool manufacturing and food processing site possibly representative of the Wailaki or earlier occupation. Evidence of a historic hunting camp is located at the southwestern edge of the site.

The surface of the site is disturbed by grazing cattle and the Vann Cabin Jeep trail crosses over the center of the site.

Big Butte 4 - Hungry Bear Site. (CA-Tri-213) This site is located less than 3/4 of a mile southwest of Big Butte 2 just off a jeep trail in a clearing in dense timber at the 5250 foot elevation contour (see Map 4). Chipped stone artifacts and manufacturing debris litter the surface of the clearing. This is a possible hunting camp: a large number of projectile points were observed (20) including 3 obsidian points and 13 plano-convex points. At least four of the projectile points fit Meighan's description (1955:12015) of artifact types diagnostic of a time period of ca. 500 BC to AD 1000.

Big Butte 5 - The Marsh Site. (CA-Tri-214) This site is located approximately 330 meters west from the southwest edge of Big Butte 4 at the convergence of 2 dry creeks and a perennial creek at 5100 feet elevation (see Map 4). It is situated on the first bench above the creeks in a clearing in dense timber where a spring occurs on the site. There is a scatter of chert manufacturing debris on the surface with a concentration of material at the southwest edge of the site. This is a possible hunting camp: Artifacts included chert and quartzite flakes, a quartzite hammerstone, scrapers, and two side-notched projectile points. The small side-notched projectile points may place the site in a late time frame (ca. A.D. 300 to A.D. 1800).

Big Butte 6 - Flat Island Site. (CA-Tri-215) This site is located between Big Butte 4 and 5 on the south edge of the drainage leading to Big Butte 5. It is on an alluvial deposit in a clearing in dense timber at the convergence of 2 dry creeks at about 5100 feet elevation (see Map 4). This may be a tool manufacturing site: There is a very small scatter of chert lithics, i.e., 4 flakes, a scraper, and a projectile point which is possibly diagnostic of a time period ca. 500 B.C. to A.D. 1000.

Big Butte 10 - Little Oaks Site. (CA-Tri-219) The site is located approximately 20 meters northeast of the intersect of Vann Cabin Jeep trail and a fence line where the quarter corner marker for Section 24 is posted on a tree. It is situated in an open area among a stand of

small oaks near a dry creek at 4800 feet elevation (see Map 4). The lithic scatter indicates a possible tool manufacturing site. There were no diagnostic artifacts, however, observed material included several chert flakes, two chert scrapers and a quartzite core.

Sites Located in the Area of the Proposed Access Road

Vann Cabin Historic Site. (CA-Tri-209) The site is located 1-1/4 miles northwest of the timber sale at the end of Vann Cabin Jeep trail at 4900 feet elevation (see Map 4). The site consists of a cabin made of hand split logs, a large barn, a spring-fed hand hewn log watering trough and a corral area. These buildings were built in the early 1930's by Frank and Lloyd Brown, long time ranchers in the Round Valley area. The original cabin was built on this site in the 1880's by a sheep rancher named Vann (personal communication, Steve Bundy). It is one of a series of way stations for sheep ranchers who grazed sheep in the area from the 1880's to around the 1930's. Vann Cabin is representative of the early American ranching period in northwestern California.

Big Butte 3 - Single Flake Glades Site. (CA-Tri-212) The site is located approximately 1/8 of a mile north northwest of Vann Cabin on a cattle trail beginning at the northwest corner of the fence line surrounding the cabin at ca. 4950 feet elevation (see Map 4). It consists of a sparse lithic scatter throughout 4 chert flakes, a side-notched point fragment and a Borax Lake Wide Stemmed projectile point

were among the lithics observed. The Borax Lake point represents a time period from ca. 8000 to 3000 B.C.

Big Butte 7. (CA-Tri-216) This site is located on a ridge running south and east from Big Butte ranging from 5500 feet to 5565 feet elevation (see Map 4). The site is a very sparse scatter of lithics including chert and quartzite flakes, two cores and a chert projectile point fragment. There were no diagnostic artifacts observed at this site but its existence adds to the general knowledge of land-use patterns. The site may be associated with a quarry area less than a quarter mile east (Big Butte 8).

Big Butte 8. (CA-Tri-217) This site is located approximately 25 meters north of a ridge top and about 1-1/4 miles east of the Vann Cabin at 5500 feet elevation (see Map 4). A possible quarry site, it consists of about 10 small rock outcrops of chert exhibiting concoidal fractures. No chipping waste or diagnostic artifacts were observed; however, tool manufacturing may have taken place at Big Butte 9 located about 75 meters north.

Big Butte 9. (CA-Tri-218) The site is located approximately 100 meters north of a ridge top on a peninsula area between two small stream beds and in a small open area among the trees at 5500 feet elevation (see Map 4). Although no diagnostic artifacts were observed over abundant flakes of chert and quartzite material occur on the surface. The flaking debitage may be associated with quarrying

activities from Big Butte 8 located about 75 meters south.

Sites Located Along or Near the Existing Access Road

Big Butte 11 - Pepperwood Crossing Site. (CA-MEN-842) This site is located on the south edge of a large flat terrace at 4200 feet elevation (see Map 5). Chipped stone material and grinding implements were observed eroding off the terrace edge into Pepperwood Creek. The material was concentrated only on the slope and included chert flakes, scrapers, a chopper, and a possible projectile point fragment. A possible food processing site is indicated by the presence of several mano fragments and a hopper mortar fragment. The site may have extended out onto the terrace but any surface evidence has been substantially modified by bulldozers during construction of the adjacent log bridge.

Big Butte 12 - Pook's Quarry Bowl Site. (CA-Tri-220) This site is located on the northwest edge of a bowl-shaped area of land where the surface of the slopes are a grayish black color. It is about 3/4 of a mile south of the Lower Timber Sale and occurs at ca. 4700 feet elevation (see Map 4). It consists of a large rock outcrop of light green chert (the material found in the local sites) with large quantities of associated chert flakes, cores, and numerous hammerstones occuring on the talus slope. Concoidal fractures occur on much of the lower part of the outcrop and a light scatter of chipped stone flakes plus two scrapers were observed along the sides and above the

outcrop. The large size of the chert outcrop and the piles of fractured chert material on the talus slope suggest that the quarry supplied raw material for large numbers of tools to local aboriginal inhabitants.

Big Butte 13 - Corral Ridge Site. (CA-MEN-843) The site is located about 1/2 mile south of Big Butte 12 on a ridge top that extends west of the road at 4600 feet elevation (see Map 4). A light scatter of chert material including flakes, a scraper fragment, and a biface with well worn edges was observed. There were no diagnostic artifacts, however, the area may be a manufactuing site associated with the quarry to the north.

Big Butte 14 - Manzanita Site. (CA-MEN-844) The site is situated above a dry creek on a bank below a large rock outcrop at ca. 4600 feet elevation (see Map 4). It is about 90 meters west and down hill from the road. A gray-brown, gravelly midden deposit of unknown depth is covered by a thick growth of manzanita and the adjoining area is littered with chert debris. Chert flakes, several scrapers, and at least 2 mano fragments were observed. Surface indicators are suggestive of an early (Borax Lake pattern) seasonal occupation site.

Short Creek I - Short Creek Village. (CA-MEN-214) This site was originally recorded by Edwards in 1966. It is located 1.9 miles from the intersection of Highway 162 and the Louisiana-Pacific logging road. It is situated on the secondary terrace above Short Creek 57

meters north of the road at 1600 feet elevation (see Map 5). The site is a village of 7 house pits and a possible dance house with 9 associated storage pits located on a third terrace, behind the site to the north. The dark gray-black midden is littered with chert and greenstone debris. Specially noted were three projectile points, numerous scrapers and utilized flakes. Inspection of rodent holes suggest that the midden may be as much as a meter deep. A scatter of manos, metate fragments, and possible pestle fragments were observed, suggesting that this may be a relatively early site. The west end has been riddled by rodent holes and is disturbed by a bulldozer cut.

Short Creek II - Fire Site. (CA-MEN-845) The site is located on a low ridge approximately 15 meters above and northeast of Short Creek and .3 miles south of Short Creek I. The ridge is bounded on the east and west by dry creeks that intersect Short Creek. The site is located at 1500 feet elevation (see Map 5). Two possible storage pits and a large area of dark brown midden overgrown by manzanita were observed. Within the partially obscured midden area there appeared to be a large depression indicating a possible dance house or a series of house pits. The adjacent area is littered with grinding implements including a hopper mortar, a pestle, well worn manos, and mano fragments. There is a scatter of chipped stone material such as greenstone and chert flakes, scrapers, blades and a projectile point. The varied types of grinding implements suggest considerable time depth for the site.

The existing road is about 20 meters to the southwest and the site is not easily accessible or visible to traffic. However, a gravel road crosses Short Creek south of the site and then borders the northeast edge, which possibly destroyed a portion of the site.

Short Creek III - Greenstone Site. (CA-MEN-846) The site is situated on a low bench at Short Creek .1 of a mile from Highway 162 and 33 meters southeast of the road at 1500 feet elevation (see Map 5). A small amount of cultural material is scattered over the site area including a small gravel bar in the creek. A large greenstone chopper-scraper, a mano, a possible mortar and 3 chert cores with concoidal fractures were observed.

Short Creek IV - Lost Nest Site. (CA-MEN-847) The site is located .4 of a mile northwest from Short Creek I and is 92 meters east of the road on a high bank overlooking a drainage that intersects Short Creek to the southeast at 2600 feet elevation (see Map 5). The storage or roasting pit site is indicated by 4 well defined rock lined pits situated in an oak grove. A chert scraper fragment and a possible mortar fragment were observed. The mortar fragment would indicate a possible time period of ca. 500 B.C. to A.D. 1000.

Short Creek V. (CA-MEN-215) Apparently this site was originally recorded by Edwards in 1966 and was relocated during the present survey. It is located on the first terrace above Short Creek and just below Short Creek I, where an open area has been flattened by bulldozing at

ca. 1500 feet elevation (see Map 5). The present road and bulldozing activities have destroyed most of the site although a small amount of midden is evident in the road cut and material culture may exist beneath the surface. Several milling implements scattered in the area are suggestive of an early time period.

Short Creek VI. (CA-MEN-848) The site is located on the first terrace west of the intersection of a dry creek and the present road, approximately 125 meters west of Short Creek I and adjacent to Short Creek V at 1500 feet elevation (see Map 5). A fire hearth site is indicated by 5 rock clusters and associated dark, ashy gray soil. A greenstone chopper and a green chert scraper fragment were observed, neither of which are diagnostic artifacts. The site may be associated with Short Creek I and V.

The existing road is about 17 meters south and may have cut through a portion of the site.

Sites on Hulls Creek

Hulls Creek I. (CA-Tri-221) The site is located on a flat bench on the west side of Hulls Creek, approximately 1/8 of a mile from the mouth of Hulls Creek at 1400 feet elevation (see Map 4). Four house pits are situated on a large midden mound at least 1 meter high. The entire midden area is littered with manos, mano fragments, and several pestle and metate fragments as well as chert flakes, many of which appeared to have been reworked. The grinding implements are suggestive

of an 8000 year time span.

Hulls Creek II. (CA-Tri-222) The site is located about 140 meters south of Hulls Creek I on the west bank of Hulls Creek where a dry creek intersects (see Map 4). A large midden mound with three house pits and an excavated area of unknown use were observed. There are several clusters of fire blackened rocks on the surface of the site. The lithic scatter includes chert flakes and a green chert projectile point possibly diagnostic of the late period (Clear Lake pattern).

c/9

TABLE

Ownership Data on Cultural Values

	Site No.	Name	Owner
1.	CA-Tri-210	Big Butte 1	Richard A. Wilson/BLM
2.	CA-Tri-211	Big Butte 2	Richard A. Wilson
3.	CA-Tri-212	Big Butte 3	Louisiana Pacific Corp.
4.	CA-Tri-213	Big Butte 4	BLM
5.	CA-Tri-214	Big Butte 5	BLM
6.	CA-Tri-215	Big Butte 6	BLM
7.	CA-Tri-216	Big Butte 7	Richard A. Wilson/F.S.(Willows District)
8.	CA-Tri-217	Big Butte 8	Richard A. Wilson
9.	CA-Tri-218	Big Butte 9	Richard A. Wilson
10.	CA-Tri-219	Big Butte 10	Richard A. Wilson
11.	CA-Men-842	Big Butte 11	Louisiana Pacific Corp.
12.	CA-Tri-220	Big Butte 12	Louisiana Pacific Corp.
13.	CA-Men-843	Big Butte 13	Louisiana Pacific Corp.
14.	CA-Men-844	Big Butte 14	Louisiana Pacific Corp.
15.	CA-Men-214	Short Creek I	Louisiana Pacific Corp.
16.	CA-Men-845	Short Creek II	Louisiana Pacific Corp.
17.	CA-Men-846	Short Creek III	Louisiana Pacific Corp.
18.	CA-Men-847	Short Creek IV	Louisiana Pacific Corp.
19.	CA-Men-215	Short Creek V	Louisiana Pacific Corp.
20.	CA-Men-848	Short Creek VI	Louisiana Pacific Corp.
21.	CA-Tri-221	Hulls Creek I	J.K. Henderson
22.	CA-Tri-222	Hulls Creek II	Robert and Edna Henderson
23.	CA-Tri-209	Van Cabin Site	Richard A. Wilson

III. ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION (UNMITIGATED)

In the following discussion, possible environmental impacts are considered without regard to any mitigation measures that might be taken. Mitigating measures are discussed in Section IV.

A. Road Construction and Maintenance

1. Increased soil loss and stream sedimentation will occur. The quantity of soil lost and the increase in stream sedimentation caused by road construction, cannot be accurately determined unless intensive studies are conducted under all climatic conditions. An estimate can, however, be made to project potential soil loss. A 16-foot road constructed across an average slope of 60% will contain 1/10 acre per 100-foot segment.

Approximately 24 acres of new roadbed will be permanently exposed in the construction of 8 miles of new road. With or without mitigating measures, approximately 90 percent of the entire precipitation falling on the compacted roadbed can be assumed to be runoff into ditches and through culverts. This would amount to 86 acre feet of runoff annually. With normal road construction practices, sediment yields accompanying this runoff could be expected to be in the vicinity of .01 inch per year per acre or .005 acre feet per year (10 tons) from the 24 acres. Approximately 9 tons of the sediment would be diverted to downhill slopes. Adequate natural filter fields exist to prevent entrance into tributaries. The remainder, one ton, would drain directly

into seven tributaries of the larger streams in the area.

2. Water quality will be temporarily affected. Road construction will increase water turbidity during the first winter's flush of the drainage and until disturbed ground has stabilized. Solid debris will also work its way into tributaries. After the first two winters, stream sedimentation and turbidity should return to background levels or to not more than 3% to 5% above background levels.

Some continued effect upon water quality may be expected from road maintenance activities. The extent of this impact depends upon the effectiveness of the water control facilities designed into the road.

Substantial increased and sustained sedimentation into Hulls, Casoose, Fynch, Red Rock, and Peterptor Creeks could adversely affect the habitat and fish populations. However, the presence of the existing 19 miles of private road does not appear to have permanently disrupted adjacent stream habitat or aquatic populations.

3. Road Construction

Road construction, particularly through the grassland soil series (Hulls and Laughlin) can increase the probability of massive slides and soil slips. Added compaction and multiple lateral drainages along slopes above the road are essential to reduce this hazard. Side slopes steeper than 3:1 on these soils will result in slope instability.

Once the natural angle of repose is exceeded (by cuts, fills and sidecast material), instability increases based upon a number of characteristics; these include the type of vegetation, type of soil, soil moisture conditions, angle and depth of bedrock and weight of sidecase material.

4. Air quality will be temporarily affected. Road construction and maintenance equipment and burning of right-of-way slash will add carbon monoxide, hydrocarbons and particulate matter to the atmosphere. No data are available on quantities and concentrations of pollutants that will be produced. This pollution, however, will be short-lived, and should not create any lasting effect on the environment. Construction activities will occur over a one-month period and burning of right-of-way slash will take one week.

5. Road construction will affect wildlife living in the area.

a. It will destroy about 79 acres of vegetation and cover presently used by wildlife (24 acres in roadbed, 55 acres in cuts and fills). Most of the area in the cuts and fills will grow back, increasing wildlife forage and browse, but the overall increase will be slight since the 24 acres in the roadbed will be unproductive as long as the road is used.

b. It will produce 8 miles of "edge effect" (area where two different vegetative ecotypes join). Deer and upland game will avoid the roadway during periods of vehicular use. Increased succulent

forage provided by reseeding, and the freedom of movement provided by clearing dense brush will, however, attract these animals.

c. It will disturb 8 to 10 existing seeps which provide succulent vegetation and water for wildlife use.

d. For road construction purposes, it will be necessary to cut live trees and snags within the right-of-way. Some of these trees may be used by raptors for observation, perching and nesting. Cutting these will create a temporary disturbance to raptors but substitute trees will be found for observation and perching, if they are available. Trees used for nesting, however, are another matter. Nest trees are used year after year and disturbance of these could cause raptors, especially golden egales, to leave the area permanently.

The proposed right-of-way has been inspected, both on foot and by helicopter, and no nest trees have been identified. Permanent damage to raptors should, therefore, be minimal.

e. Noises related to road construction and maintenance will disturb wildlife and possibly livestock operations. This disturbance, however, will be temporary. Livestock will return within a matter of hours once the disturbance quiets down. Deer and upland game birds may take up to one month to return, while bear and mountain lion may take as long as one year. The length of time before raptors will return after being disturbed by road construction is unknown.

4

6. Road construction and maintenance equipment will emit sounds which will increase the noise levels in Big Butte and the surrounding roadless and wilderness areas during periods of operation. This could detract from enjoyment of recreational and wilderness values. There are no residences near the proposed project and the disturbances will occur over relatively short intervals.

7. Road construction will provide a better access route for public and private use and it will shorten initial attack time by one hour, enhancing fire suppression effectiveness.

8. Construction of an access road into Big Butte will adversely impact the primitive values of the area and may have an adverse impact upon the adjacent roadless areas. An extension of the road east of Bull Ridge would be visible from the existing Yolla Bolly Wilderness Area and will, therefore, detract from the quality of the wilderness experience.

B. Timber Harvest

1. Timber harvesting will have a temporary effect upon the watershed. The hydrologic cycle of the area can be viewed in the content of a system in which the major functions can be classified as input, output and storage. Inputs to the forested ecosystem are in the form of precipitation and heat energy. Moisture storage is provided in the vegetative canopy, forest floor and in porous rock. Evapotranspiration, surface water and ground water represent outputs from

quantify net increase ?

the system. Timber harvest will decrease interception and, therefore, reduce evaporation loss, as well as loss through transpiration. However, increased evaporation from the exposed soil surface may offset these reductions. Increases in water yield will generally occur because soil evaporation is less than transpiration and evaporation of intercepted moisture.

2. Timber harvest will have an impact upon water quality for approximately two years. The heaviest sediment concentrations can be expected during the first period of precipitation following logging. Outside of sediment production, water quality is not greatly affected by timber harvest. With increased water yield after logging, run-off water increases slightly in acidity and nutrients. Harvesting removes, essentially, only the tree bole from the area, and this is composed primarily of carbon, hydrogen, and oxygen--a relatively small proportion of the nutrients taken up from the soil are deposited in the bole. A very small percentage of the nutrient capital of the stand is removed through timber harvesting. Disturbance of the forest floor may result in an increase in leaching, but is not expected to be sufficiently great to have a significant effect upon water quality.

3. Timber harvesting will increase the possibility of land slides and soil slippage in steep areas.

4. Timber harvesting will affect wildlife living in the area.

a. It will remove on-site brush, succulent forage, and hardwood vegetation which will result in a loss of wildlife forage and cover. However, timber harvesting will also result in an overall reduction in crown-density, allowing more energy to reach the soil surface. This favors the establishment of forbs, grasses and shrubs, and provides an increased food supply for wildlife. The overall result is an increase in forage. However, as stand stocking approaches normality and the canopy begins to close, this increased forage will be lost.

b. Timber harvesting will remove old growth trees and snags, some of which may be valuable as raptor nesting, perching, and observation sites.

-Descripti Environment
D

The proposed timber sale area, however, has been inspected, both on foot and by helicopter, and no nest trees have been identified.

c. Noises associated with timber harvesting (saws, logging equipment, trucks, etc.) will disturb wildlife and possibly livestock. This disturbance will be temporary and most animals will return shortly after the operation ceases.

d. Timber harvesting will cause soil disturbance, which will result in an initial increase in silt runoff into feeder streams during winter months. These streams and associated riparian habitat will be temporarily disturbed and altered until harvesting is complete

7

Quantify

and the site is stabilized. Any increase in sedimentation will have a possible adverse effect upon fisheries habitat. Siltation, if not controlled, could actually eliminate the anadromous fisheries.

Some solid debris could also work its way down into tributaries. This could create barriers for anadromous fish migration.

5. Timber harvesting may result in a temporary increase in fire hazard and, during actual logging operations, fire risk will be increased. The fire hazard, however, should be compensated for by the improved access to the area and the shortened initial attack time.

6. Burning of slash and debris accumulations will have an adverse impact upon air quality. This will be limited, primarily, to an increase in particulates. No significant quantities of sulfur oxides or nitrous oxides should be produced.

7. The combination of log truck and public use traffic may present a safety hazard. An average of 11 truckloads of logs per day is anticipated for the first BLM timber sale. This estimate is based upon 6.6 MM bd. ft. hauled over a 100-day work year with an average truckload of 6 M bd. ft.

Existing Env.

Louisiana-Pacific Corporation has approximately 30 MM bd. ft. of timber which they intend to harvest. This could add an additional 17 loads per day to the road use.

The flow of logging truck traffic, however, will not be

Existing Env.

continual. Louisiana-Pacific will probably remove their privately-owned timber within three years after the proposed road is constructed.

If the U.S. Forest Service decides to use the proposed road for the removal of timber from the Shinbone Ridge area, the impact will again be increased depending upon the volume hauled and the frequency of sales. These figures are unknown at this time.

8. Timber hauling will produce a dust problem along the roadway.

a. It will saturate the air for short periods following each truck, which may become a nuisance factor for those using the road.

b. It will coat vegetation on each side of the roadway, which is aesthetically unpleasing and may affect plant growth.

9. In the immediate area of the cutting units, the adverse impact upon aesthetics may be apparent for 10 years or more. The aesthetic impact from the intermediate view zone (between 20 and 100 yards) should be minor, due to employment of the selection system, which will maintain a visual screen of living vegetation. At greater distances the impact will be less noticeable.

Mitigation

10. Timber harvesting will reduce the possibility of a bark beetle epidemic by removing many of the dead, dying and low vigor trees which are essential for bark beetle build-up. This will improve the overall vigor of the stand and will, therefore, increase its productivity,

9

If a stand having a substantial beetle population is left unattended, the population will increase and, in doing so, will weaken and eventually kill trees which are presently vigorous and fast-growing.

— Listed emp. 104 (5)

# People employed, % minority

11. The sale of BLM timber in the Big Butte area can help to insure the stability of Louisiana-Pacific Corporation's Covelo operation. The operation presently runs on two shifts and processes 34 million board feet of timber per year. Over 50 percent of Covelo's employment is provided by this mill; a significant number of employees are minority group members.

The Covelo mill is heavily dependent upon publicly-owned timber for its present operation. Roughly 60 to 80 % of its log volume comes from the Mendocino National Forest. Private lands contribute about 20% of the mill's input volume, depending largely on the volume acquired from public lands. BLM lands provide roughly 5% on an average. Throughout most of its timber supply area, the Covelo mill has few competitors because other mills are much further away. It is the logical processor for most of the timber from the Covelo Ranger District of the Mendocino National Forest.

The Mendocino National Forest is in the process of updating its timber management plan. It is possible that the timber harvest will be reduced from previous levels under the new plan due to watershed and wilderness considerations. The impact on the Covelo mill would be reduction in the amount of logs coming in and, possibly,

reduction to one shift operation. The proposed action could compensate for a long term 2 to 3 million board foot reduction. Furthermore, it could cushion the impact of a larger reduction in Forest Service harvest. The 20 to 25 million board feet of privately owned timber, accessed via the Big Butte road, would provide an adjustment period of approximately three years during which the mill operation could adapt to a reduction in Forest Service cut, if it occurs. A reduction of the mill and woods operation to one shift would directly reduce employment by about 85 jobs and would spread economic decline throughout the community.

In the event that there is no decrease in Forest Service harvest, the proposed action will permit the mill to be sustained at its present level of production for the forseeable future without premature harvest of second-growth forests on private land. The forests on these previously cut-over lands are now largely in the thirty years and under age classes.

12. Timber harvesting will eliminate the primitive character of the area and may adversely impact primitive values on the adjacent roadless areas. Cutting areas are within one-half mile of the Castle Peak roadless area.

C. Public Use

Much of the controversy generated by the proposed action seems to be associated with the issue of public access. Some adjacent

Should be stated the SAME impacts would occur on Pvt. LAND - in some case because of location might be greater than would occur on public lands.

landowners feel that public access will lead to high-density recreation use and may increase the difficulty of controlling use of the private lands in the Big Butte area. Conservation organizations and individuals are interested in insuring that wilderness and primitive values are adequately considered in management decisions. The proposed action will preclude public use of the area until a recreation management plan is prepared. Recreational demand in the area is fairly high, however, and it is worthwhile to consider the impact that uncontrolled recreational use would have on the Big butte area.

1. An estimated 1,000 visitor days of recreational use would be consumed during the first year. This includes about 500 visitor days for hunting, 300 visitor days for fishing and 200 visitor days for sight-seeing. Family camping is a growing recreational pursuit in all parts of the country. An additional 400 visitor days use could be expected if campground facilities were constructed. Hunting pressure would probably be heaviest the first year. During the following years, the amount of pressure would depend upon the first year's hunting success and the condition of the game herds. Quite often, use gradually declines after the first year. Fishing pressure is presently negligible and, because of the rought terrain and the presence of many other trout streams in the general area, only a slight increase in use could be anticipated. Since the proposed road will not be through route, sightseeing would probably not be a major use of the area.

2. Off-road vehicle use could be anticipated and would have

adverse impacts, although the severity of these impacts cannot be predicted until the specific plan is prepared. Off-road vehicle use would cause some increase in erosion and would add to the sediment load and turbidity of streams.

3. Public access would result in increased littering, water and air pollution and fire danger.

a. Approximately 15 cubic feet of litter could be expected for each 100 visitor days.

b. Water pollution would result from dumping waste materials in streams and other areas where disposal facilities are not provided.

c. Air pollution (carbon monoxide, hydrocarbons and particulate matter) would result from vehicle and campfire use. This pollution, however, would be minimal because Big Butte would be a low density use area and is isolated from other air pollution sources.

d. The risk of man-caused fires is presently slight because of the lack of access. Public access would increase this risk.

4. Public use would have an impact upon wildlife in the area.

a. There would be increased sport harvest of deer, quail, and other upland game.

b. Off-road vehicle use would cause animal disturbance and possible damage to habitat.

c. There would be a possible avoidance of the area by bear, mountain lion and eagles, due to human disturbance.

d. There would be a possible loss of some non-game species (birds, reptiles, amphibians) due to the permanent presence of humans.

e. It would disturb fisheries by increasing water pollution and turbidity.

5. Public access to the Big Butte area would provide an additional trailhead into the Yolla Bolly Wilderness Area. This could increase trail maintenance requirements. Use of the Yolla Bolly increased 15% between 1970 and 1971 and it is expected to continue to increase.

6. Provision of public access into Big Butte would increase the possibility of trespass and vandalism. The fact that the road will dead-end at Big Butte and parties who enter will have to depart over the same route may act to deter vandalism to some extent.

7. The amount of public use projected for Big Butte would not expect to have any noticeable effect upon the Covelo community. Some supplies may be purchased locally, but recreationists are increasingly turning toward campers and trailers and probably will purchase most of their supplies near home. Gas, ice, beverages and hunting and fishing equipment will be the major supplies purchased in Covelo.

8. Soil compaction would occur in areas where use is concentrated (campsites, picnic areas, etc.) but would be negligible on the

remainder of the area.

9. Simultaneous use of the access road by logging trucks and public vehicles would create a safety hazard. Logging truck traffic, however, will occur mostly during week days while recreation traffic would occur mostly during weekends.

quantify

10. Public use of roads during wet weather would cause increased erosion. If this occurs, increased road maintenance costs could be expected.

11. Use of roads by the public and off-road vehicles could cause some distrubance to livestock operations, i.e., shooting, chasing livestock, trespassing, etc.

12. Use by campers, sightseers, hunters and fishermen could detract from the wild character of the area. Vehicular access would be provided to 10,000 acres of national resource lands.

D. Impact on Cultural Resources

Road construction and maintenance will adversely affect ten of the 23 recorded archaeological and historic sites within the Big Butte Timber Sale project.

TABLE

Summarizes the sites and impact
from proposed road construction.

Site No.	Direct	Indirect
CA-Tri-210	+	
CA-Tri-213	+	
CA-Tri-214	+	
CA-Tri-215	+	
CA-Men-842	+	
CA-Tri-220	+	
CA-Men-843	+	
CA-Men-844		+
CA-Men-214		+
CA-Men-215	+	
CA-Men-848	+	

Direct impact from road construction activities will be sustained by eight sites and indirect impact by two sites. The latter two sites could be adversely affected by downslope erosion related to roadway construction. Analysis of the impacts are as follows.

1. The Lower Timber Sale Unit

This area will not be affected by the Big Butte sale: "An adequate enough archaeological reconnaissance was made of the area of the lower timber sale to determine that there will be no impacts, either direct or indirect, to cultural resources by the proposed action" (Hanks and Indermill 1974:24).

2. Adjacent Areas to the Big Butte Timber Sale

Based on observations made during aerial reconnaissance there is a low probability that any sites that may occur in the vicinity of Little Butte, Bull Ridge, or Big Butte will be impacted, directly, by construction of the proposed access road. However, management, (patrol) of potential cultural resources must be provided if the public is allowed access into these areas subjecting them to indirect impact by potential surface collectors. The Hulls Creek Sites (I and II) will not be subject to direct or indirect impact from the present proposed timber sale. They are located about 2 miles from the indirect impact area and next to public lands. However, in order to maintain their integrity any future land management plans in this area must include provisions for protection of the Hulls Creek Sites and other potential cultural resources.

17

3. The Upper Timber Sale Unit

Four sites are located within the Upper Timber Sale Unit and will be directly impacted by logging activities and spur road construction.

Big Butte 1 (CA-Tri-210) and Big Butte 2 (CA-Tri-211) = Both archaeological sites are located in large, open, level clearings in a dense timber area. They are ideal turning and parking locations for heavy equipment and it is highly probable that they would be severly impacted by the logging procedures for removing the trees that surround the sites. Additionally, the proposed access road is located directly across Big Butte 1 (CA-Tri-210), construction of the road would severly impact this site.

Big Butte 4 (CA-Tri-213) = This site is located in a level open clearing in dense timber and will be severly impacted by the project. A possible spur road is located directly accross the site, with another possible spur road located on the north edge of the site. The logging road (access road) crosses near the northeast edge of the site. Because of its location Big Butte 4 will be an area of intense activity.

Big Butte 5 (CA-Tri-214) = This site is located adjacent to Big Butte 4 and is an area of possible direct impact.

Big Butte 6 (CA-Tri-215) = This site is located about 60 meters down hill from the proposed spur road and the edge of the timber sale. It is likely to suffer direct impact from the effects of road construction or related activities.

4. Existing Access Road Right-of-Way

Some of the sites along the right-of-way corridor will be directly impacted by road improvement or road maintenance activities. Road improvement and maintenance will include some widening and realignment, adding of additional drainages to provide adequate run-off, clearing of drainages and replacement of log bridges. Five archaeological sites could be directly impacted by road improvement and maintenance activities.

Big Butte 11 (CA-Men-842) This site is located at the edge of the access road near a log bridge. A new, stronger bridge will probably be constructed and there is a strong possibility the site will be completely destroyed. It is located on the edge of a flat terrace, the only area of maneuverability for vehicles and other equipment.

Big Butte 12 (CA-Tri-220) - The existing access road has cut across the west portion of the site. Exact locations have not yet been determined for road improvement and maintenance activities. However, if this section of the road is determined to need modification the site will be directly impacted.

Big Butte 13 (CA-Men-843) - This site has also been cut by the existing road. If road improvements are to be made at the site area, damage could occur.

Short Creek V (CA-Men-215) - A turnout and an existing access road have

been constructed over this archaeological site destroying an undetermined portion. Some cultural deposit is still noticeable in the road cut and a scattering of material culture along the roadside turnout is visible. There is a possibility that a portion of the site is unharmed beneath the roadcut and it should be preserved.

5. Sites in Areas of Indirect Impact

The following sites may be indirectly impacted from activities related to road construction and spur road construction as well as from public use.

Short Creek I (CA-Men-214) - Accidental damage to this site could occur during road improvements. It is located about 57 meters north of the existing access road and has bulldozer cuts in the west end, possibly from previous road construction activities.

Big Butte 14 (CA-Men-844) - This site is located about 90 meters below the existing access road and may suffer from erosional damage if a drainage pipe is located above the site.

6. Indirect Impact

Cultural impact as a result of public use is difficult to quantify. Increased public access could result in such indirect impact as offroad vehicle trails across sites, compositions of sites and erosion of sites. Indirect impact could result from the public collecting artifacts from the surface of sites or actual vandalism such as excavation or destruction in the case of the Vann Cabin historic site.

Append

Mitigation in granting of the R/W

IV. MITIGATING MEASURES INCLUDED IN THE PROPOSED ACTION

The following measures will be taken to mitigate impacts:

A. Road Construction and Maintenance

1. Road improvement work and new construction will be done under supervision and to Bureau road standards and specifications, keeping the road as narrow as possible for the anticipated needs and safety required. The road standard to be used is SN 16 (16-foot subgrade plus a four-foot ditch).

2. Unstable soil conditions have been avoided whenever possible. The original road location was inspected by an engineering geologist for potential landslide areas and scraps. The route was then relocated around critical areas found during this inspection. The possibility of massive landslides and soil slippage along the roadway should, therefore, be minimal.

3. Special attention will be given to the spacing of cross drainage, the type of soil and grade of side and intake ditches, and the type of soil and slope where cross drains are discharged.

4. All drainage structure, which are required for natural drainages, will be designed to meet discharges of a 50-year intensity storm.

5. Culverts will be extended down fill slopes; spill basins and energy dissipators will be installed where there is a danger of slope erosion.

6. Where a fill section is exposed or erosion by streams, the fill slopes will be protected by riprap or retaining walls of sufficient size to prevent erosion.

7. Cut and fill slopes, skid trails and other disturbed areas will be mulched and seeded in the fall to provide an immediate cover with the advent of the first fall rains. Fertilization at a rate of 90 pounds per acre will accompany the seeding. Seeding will be at a rate of 15 pounds per acre. The seed mixture will include quick germinating annuals and longer lived perennials at the following rates:

Blando brome	5 lbs.
Harding grass	3 lbs.
Annual ryegrass	3 lbs.
Palestine Orchard grass	3 lbs.
Lana vetch	1 lb.

8. Wherever possible, roads will not be built adjacent to streams. Buffer strips of trees or other vegetation will be left to prevent soil and debris from reaching stream channels.

9. Only clearing that is absolutely essential for road construction will be done. The road will be located to fit the ground and to take advantage of existing roads, benches, ridgetops, and other favorable locations.

10. All road construction will be done during the dry season to prevent soil damage and erosion. Fire control and prevention stipulations will be included in the contract.

11. Proper maintenance schedules will be followed to prevent plugging of ditches and culverts.

12. Large drainages will be bridged or provided with a drop structure.

13. Road cuts and fills will be balanced so far as practical to minimize the disturbed surface area. Excess excavation material will be end-hauled to places where it can be used as riprap or fill, or placed in prepared spoil areas.

14. The road grade has been kept as low as possible to reduce erosion potential.

15. Ditchlines will be constructed at the base of all back-slopes to control runoff and to reduce the quantity of water on the road surface.

16. Turnouts will be constructed on all blind curves and at other locations where necessary, to provide safe passage of vehicles moving in opposing directions.

17. Berms will be constructed, where necessary, to prevent erosion of embankments.

18. Roadside seeps and succulent vegetation will be protected as much as possible by minimizing sidecast and construction disturbances.

19. Vigilance for raptor use during road construction will be maintained and snags and habitat types that are used will be avoided, wherever possible.

20. Construction equipment will comply with federal and state laws governing air quality and noise output.

21. Impacts upon the Yolla Bolly Wilderness Area and the roadless area in the vicinity of Shinbone Ridge will be minimized by deleting the planned extension of the Big Butte road into the area east of Bull Ridge and by maintaining that area in its present condition until the Forest Service management direction for the Shinbone Ridge area is decided.

22. Special drainage will be designed in the "seep" areas.

B. Timber Sale

In order to minimize the adverse impacts of timber harvesting, the following mitigating measures will be taken:

1. To reduce the possibility of massive landslide and to minimize the impact on water quality, tractor skidding will be confined to slopes of 45% or less. On steeper slopes, uphill cable logging or some type of aerial logging system will be required by the authorized officer.

2. Buffer strips will be left to safeguard streambank and water courses from visual, thermal, sediment, and debris pollution. The width of these strips is variable and dependent upon slope, vegetative composition and density.

3. No logging will be allowed during wet weather in order to prevent excessive soil compaction and stream sedimentation.

4. In disposing of logging slash, preference, in order of consideration, will be given to: commercial utilization of cull material, chipping, lopping and scattering, and piling and burning. Slash concentrations will be burned only during periods when smoke will disperse rapidly. Burning will be done only after consultation with the California Division of Forestry and will be in compliance with federal and state laws. Broadcast burning will not be permitted.

5. Under the terms of the contract, rehabilitation measures will be initiated as soon as logging is completed. These will include water barring, reseeding and/or planting all tractor skid trails, temporary haul roads and landings.

Mitigation on Pvt. lands.
what's Required by California State
Div. of Forestry?

6. Only those snags which present a safety or fire hazard will be cut. Some of these snags may have importance as raptor perching or nesting sites.

7. The selection system will be used to harvest timber. This system involves the removal of mature trees either singly or in small groups at intervals of time, permitting the continuous establishment of regeneration. The selection system of cutting is more aesthetically pleasing than clearcutting.

8. Log landings will not be permitted in drainage bottoms or adjacent to live streams.

9. Maximum protection will be given to all oaks, as they provide critically valuable acorn crops for deer and upland game, as well as being valuable as nesting sites.

10. Logging within 700 feet of eagle nests, if any are discovered, will not be permitted from March through August. In addition, all snags standing within a 1-1/2 mile radius of eagle nests will be left.

11. Construction of spur roads or landings will not be allowed in the glade areas, which provide valuable wildlife habitat.

12. Warning signs and regulated hauling periods will be used to insure vehicle safety.

put Roads also?

13. Roads will be watered or oiled during periods of log hauling to abate dust. Application of oil will be regulated so that the possibility of stream pollution will be minimized.

14. Timber harvesting equipment will meet federal and state law requirements concerning air quality, noise pollution and fire safety.

C. Public Use

1. Preparation and implementation of a Recreation Management Plan will minimize the impacts of increased public use of the area. Until such a plan is prepared, the area will not be open to public use. This plan is not currently scheduled for preparation.

2. Sheriff's patrol of the area by Mendocino County could be provided. The Mendocino County Sheriff has been contacted and ~~is~~ willing to agree to service the area, without charge. In the case of serious offenses, suspects could be held for Trinity County authorities.

do they have this capability?

3. Public use will be limited to dry seasons of the year. #7 This will minimize erosion of the roadway and other use areas. The road will be gated. - ~~More damage when road is wet~~
- ~~Reduce fire hazard~~.

4. Right-of-way boundaries and national resource lands will be identified so that accidental trespass or private lands will be kept to a minimum.

5. To protect wildlife grazing and watershed values, off-road vehicle use will be limited to designated areas.

6. The public will be cautioned about disturbing the eagles and hawks in the area, particularly during the March-July nesting period.

7. To mitigate the possible distrubance of seasonal movement patterns of the deer herd, the mainline road will be closed from November to March.

~~if the road will be closed during the dry season, Nov to March when will it be open to the public~~?

8. Warning signs and regulated hauling periods will be used to insure vehicle safety. Logging truck use of the road will be prohibited during the first week of the deer season, on holidays, and from 5:00 p.m. on Fridays until 12:00 midnight on Sundays.

D. Cultural Resource Mitigation

Mitigation measures for the archeological values include avoidance of all archeological and historical values not directly impacted by creating a buffer zone around them. The area will not be opened to the public until the preparation and implementation of a Recreation Management Plan.

For those sites directly impacted and indirectly impacted by road construction, a salvage program will be funded to provide for data retrieval, including: a) intensive surface collection of specimens; b) mapping of site features; and, c) excavation of sites directly affected and those sites indirectly effected by construction, as identified in Section III. The sites to be salvaged are identified in Table ? . All are affected by road construction thus limiting viable mitigation measures to salvage of the cultural values.

V. ADVERSE IMPACTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED.

A. Increased sedimentation during the first winter's runoff, which is caused by new road construction, can be reduced but not eliminated. Some sedimentation will also occur along the existing 19 miles of road. This will be primarily because of the need for realignment and widening of some portions of the road. Some sediment may reach the stream channels and adversely affect fish life.

B. New road construction will leave a visible scar along portions of the hillsides until vegetation on the cutbanks and fill slopes becomes established. Even after revegetation, a trace of the road may remain visible.

C. Road construction and timber harvest will inevitably reduce the wilderness quality of the area. This impact will be essentially permanent. The primitive values of the adjacent roadless areas may be reduced.

D. Loss of some wildlife habitat (hardwoods, snags, and understory forage) with the road right-of-way cannot be avoided. The possibility exists that the area will become unattractive to those wildlife species requiring a wilderness type of habitat. Temporary disturbance to wildlife habitat is a certainty; whether there will be any lasting effects is unknown.

E. Temporary noise and air pollution and human disturbance to wildlife habitat during road construction are a certainty. The lasting effects are unknown.

- ~~Air pollution (Roads & burning of slash)~~
- accelerated harvesting of timber on pvt lands will occur.

F. Continued grading of the road will allow fine soil particles to erode away unless the road is oiled or rocked. Oiling and rocking are expensive and surfacing may not be possible under present funding.

G. There will be an increase in sediment production due to off-road vehicle use, if such use is allowed pursuant to the Recreation Management Plan.

H. Fire risk will increase but may be offset by increased accessibility of the area to fire suppression.

I. There may be trespass by individuals who do not respect private property rights.

- increased litter problems

VI. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY.

The proposed action will have only a slight effect upon the long-term productivity of the area.

A. Sediment yield after construction of the road will increase substantially during the first two years. After two years, sediment yield should not be more than 3% to 5% above background levels. During the average year, 172 acre-feet of water will fall on the 8 miles of road. Under natural conditions, 60% to the 172 acre-feet would run off. Under the denuded condition of the constructed road, 75% to 80% of the 172 acre-feet may run off. This excess water will place erosive pressure on precarious areas in natural drainages causing watershed deterioration until vegetation counter-balances this additional yield. Skid trails will have a similar effect. However, the acreage in skid trails cannot be predicted.

B. Wildlife will avoid the road construction area because of the noise associated with construction. However, once the road is completed, wildlife will use the road as a means of access.

C. The timber sale will cover approximately 300 acres which will store 172 acre-feet of water annually. It is estimated that after the harvest, runoff will increase from 2% to 5% for the first two years or until the understory has established a protective cover. After the cover has been established, the only increased water yield will come from roads or other denuded areas. With good watershed practices incorporated into logging practices and rehabilitation measures, runoff should be limited to near average levels.

D. Wildlife, particularly bear and raptors, will avoid active timber harvesting operations, but they will usually return once the operation is completed.

E. Timber harvesting will create some soil disturbance and destroy ground vegetation and cover and some snags, but one long-term effect will provide improved hunting opportunities and increase desirable game forage.

F. No known unique or rare wildlife species habitat would be damaged or lost because of implementation of the proposal. Raptor use sites require further study and logging restrictions may be required if any critical use areas are found in the timber sale vicinity.

G. Conversion of the old-growth stands to a managed forest will increase the productivity of the area. Growth will be increased and mortality losses will be captured.

VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The loss of primitive quality, which will be caused by the proposed action, constitutes an essentially irreversible commitment of the area's resources. Of course, given sufficient time, this impact is reversible; but it would require at least one full rotation of 100 to 120 years to restore the area to a primitive condition.

This assumes No future cutting & Road being abandoned

The eight miles of new road construction will create a loss of approximately 24 acres of vegetation and cover which will not be replaced as long as the road is in use.

VIII. ALTERNATIVES TO THE PROPOSED ACTION

A. Alternatives to the timber sale and right-of-way.

1. ALTERNATIVE NO. 1 = No action = BLM would not acquire access, construct the Big Butte road, or initiate timber harvest and related forest management practices. Louisiana-Pacific Corporation's right-of-way application would ~~be~~ denied.

a. Environmental Impacts (unmitigated)

(1) Under this alternative, harvesting of the timber would not be allowed and the overstory of pine and Douglas fir timber could, therefore, change to one dominated by the presently suppressed white fir and incense cedar.

quantify loss

(2) If the present bark bettle infestation were to become epidemic, stand structure could be changed in 3 to 5 years. Without treatment, an insect epidemic could decimate the pine timber. Once a tree is killed, lumber quality is quickly degraded by blue-staining. For general purpose construction grades, all merchantable lumber is usually lost if trees are ? 2yrs not salvaged within one year after death.

(3) The net effect upon wildlife and fisheries would be to maintain the status quo. There would be no alteration of habitat and, except for the changes caused by succession, food supplies should remain stable. Fisheries habitat would be essentially unchanged. There would be no soil disturbance or alteration of stream channels.

(4) There would be no change in present recreational use of the area, since legal public access would not be obtained. The present wild character of the area would be maintained.

(5) The Louisiana-Pacific mill, at Covelo, presently supports 112 mill workers on two shifts, and 100 woods workers. Minority employment (primarily Indian) is 20%. If Louisiana-Pacific is not granted a right-of-way across national resource lands, 30 million board feet of corporation-owned timber would not be available for harvest.

The mill is also heavily dependent upon public timber supplies. If this alternative were taken, they would lose the opportunity of purchasing an additional 30 million board feet of timber. This could result in a reduction in Louisiana-Pacific's Covelo operations and an increase in unemployment in the Covelo community.

b. Mitigating Measures

(1) Deterioration of the watershed could be reversed and stability restored if grazing management systems were used to control livestock use and improve range conditions.

(2) Protection of the timber resource can only be insured by implementing the proposed action or by taking alternatives 3 or 4 mentioned within.

c. Adverse Impacts Which Cannot be Avoided Should the Alternative be Implemented.

(1) The loss of present volumes of mature sawtimber and of future increment cannot be avoided under the "no action" alternative. If the present bark bettle infestation reaches epidemic proportions, significantly greater pine mortality can be expected.

(2) Louisiana-Pacific Corporation may have to reduce mill operations.

2. ALTERNATIVE NO. 2 - Private Rights-of-Way Only - Louisiana-Pacific Corporation's right-of-way application would be granted. BLM

would not acquire access and would not develop the national resource lands resources.

a. Environmental Impacts (unmitigated)

(1) New road construction, in this alternative, would have the same environmental impact as the construction contemplated in the proposed action.

(2) Sedimentation from the existing segment (19 miles) of road would be somewhat less than if the proposed action were implemented, since no widening would be done and the road would not be designed for public use.

(3) The primitive quality of the southeastern portion of the BLM lands would be destroyed for some time, perhaps 20 to 50 years, because of new road construction.

(4) The impact upon the national resource lands timber resource would be the same as the impact of the no-action alternative, except that initial attach time would be reduced.

(5) This alternative, by making privately-owned timber available, will help insure the stability of the Covelo mill.

b. Mitigating Measures

The same mitigation requirements that were discussed for road construction in the proposed action would limit watershed damage.

c. Adverse Impacts which Cannot be Avoided Should this Alternative be Implemented

(1) Some sedimentation is inevitable due to the fragile soils and steep topography of the area.

(2) Loss of public timber volumes would be the same as for the "no-action" alternative; this loss cannot be mitigated.

(3) Loss of primitive values on a portion of the area constitutes an adverse impact which cannot be avoided.

3. ALTERNATIVE NO. 3 - Administrative Access, Private Rights-of-Way

BLM would acquire administrative access to public lands and would initiate forest management practices, but would not provide public access. Louisiana-Pacific Corporation's right-of-way application would be granted.

a. Environmental Impacts (Unmitigated)

(1) Since the same amount of road would be constructed as in the proposed action, watershed damage would be similar. Less traffic and the accompanying reduction in the need for road maintenance should result in somewhat slighter impacts.

(2) Impacts of timber harvesting would be identical to those described in the proposed action.

(3) The major impacts of this alternative, which differ from those described in the proposed action, involve changes caused by the restriction of public use from the area. Recreation opportunities would be lost - an estimated 1000 to 1400 visitor days per year. The adjacent Mendocino National Forest is not now experiencing heavy recreation use; however, as populations in urban areas increase, the supply of public lands for outdoor recreation should assume greater importance.

(4) Littering, water pollution, fire risk, etc., would be less than if the proposed action were implemented, again because of the lack of public use.

(5) Use of the Yolla Bolly Wilderness Area might be somewhat lighter under this alternative. If this is the case, impacts on the wilderness could be less than if the proposed action were implemented.

b. Mitigating Measures

Essentially the same mitigating measures would be employed in this alternative as in the proposed action. However, mitigating measures related to public use would not be applicable.

c. Adverse Impacts which Cannot be Avoided Should this Alternative Be Implemented

The impacts of road construction and timber harvest are described in the proposed action, and those impacts which would be impossible to mitigate are the same for this alternative.

4. ALTERNATIVE NO. 4 - Administrative or Public Access Only

BLM would acquire administrative access to national resource lands and would initiate forest management practices but would not provide public access; or BLM would acquire access which would permit development of all resources, including public use. In either case, Louisiana-Pacific Corporation's right-of-way application would be denied.

a. Environmental Impacts (Unmitigated)

Since the unmitigated impacts of administrative access and public access have been discussed under Alternative No. 3 and the Proposed Action, respectively, and since impacts would be identical in this action, they will not be repeated here. The only impacts that would differ through implementation of this action would be those resulting from the denial of Louisiana-Pacific Corporation's right-of-way application. Louisiana-Pacific Corporation could be forced to reduce its Covelo mill operations. It could

also result in economic dislocation in the Round Valley area.

b. Mitigating Measures

Louisiana-Pacific could purchase BLM timber, but BLM sales alone would not sustain their present level of operation. Furthermore, federal sales are competitive and there is no guarantee that Louisiana-Pacific would purchase any of them.

c. Adverse Impacts Which Cannot be Avoided Should the Alternative be Implemented

Louisiana-Pacific Corporation will have to reduce mill operations to one shift or possibly shut down completely since there are no alternate sources of timber available which they can depend upon.

5. ALTERNATIVE NO. 5 - Roadless Area

BLM would acquire access rights for the public up to the national resource lands in Section 34, T. 25 N., R. 12 W., M.D.M., but no new road construction or timber harvesting would be done. Management would be limited to those activities which do not require new road construction. Louisiana-Pacific Corporation's right-of-way application would be denied.

a. Environmental Impacts (Unmitigated)

There would be no new road construction or timber harvesting under this alternative. Other unmitigated impacts would be as follows:

(1) Road Improvement and Maintenance

(a) Widening and some realignment of the existing 19 miles of private road would be required. Bureau watershed specialists estimate that the probability of substantial quantities of sedimentation being carried downstream are low.

However, any substantial increase in sedimentation would have a deleterious effect upon the fish habitat in Hulls, Casoose, Lynch, Red Rock, and Peterptor Creeks. Since an anadromous fishery exists in Hulls Creek, these impacts could possibly be felt far outside the Big Butte area.

(b) Water quality would be affected. Road improvement would increase water turbidity during the first winter's flush of the drainage and until disturbed areas stabilize. Solid debris could also work its way into tributaries. After the first two winters, stream sedimentation and turbidity should return to background levels or to not more than 3% to 5% above background levels.

Some continued effect upon water quality could be expected from road maintenance activities. The extent of this impact depends upon the effectiveness of the water control facilities designed into the road.

(c) Air quality would be affected. Road improvement and maintenance equipment would add carbon monoxide, hydrocarbons and particulate matter to the atmosphere. This pollution, however, would be short-lived, and would not create any lasting effect on the environment.

(d) Noises related to road improvement and maintenance would disturb wildlife and possibly livestock operations. This disturbance, however, would be temporary.

(e) Road improvement and maintenance equipment would temporarily increase noise levels in the Big Butte area. However, there are no residences within hearing distance of the project and human disturbance should be negligible.

(2) Public Use

(a) Estimated use would be considerably less than use under the proposed action. The area would be available only to hikers and horseback riders.

(b) This alternative would result in increased littering, water and air pollution and fire danger.

(i) Approximately 5 cubic feet of litter could be expected for each 100 visitor days. This alternative would, however, make litter pickup more difficult.

(ii) Water pollution would result from dumping waste materials in streams and other areas where disposal facilities are not provided.

(iii) Air pollution (carbon monoxide, hydrocarbons and particulate matter) would result from vehicle and campfire use. This pollution, however, would be minimal because Big Butte would be a low density use area and is isolated from other air pollution sources.

(iv) The risk of man-caused fires is presently slight because of the lack of access. Public access would increase this risk and since there would be no vehicular access into the use area, initial attack time and fire suppression costs would increase.

(c) Public use would have an impact upon wildlife in the area.

(i) There would be increased sport harvest of deer, quail and other upland game.

(ii) There could be a possible avoidance of the area by bear, mountain lion and eagles due to human disturbance.

(iii) There could be a possible loss of some nongame species (birds, reptiles, amphibians) due to the permanent presence of humans.

(iv) Public use could disturb nesting birds.

(v) Fisheries could be disturbed by increased water pollution and turbidity.

(d) Public access to the Big Butte area would provide an additional trailhead into the Yolla Bolly Wilderness Area.

This could increase trail maintenance requirements.

(e) Provision of public access into Big Butte would increase the possibility of trespass and vandalism. The fact that parties who enter would have to depart over the same route, may act to deter vandalism, to some extent.

(f) The amount of public use projected for Big Butte is not expected to have any noticeable effect upon the Covelo community. Some supplies may be purchased locally, but recreationists are increasingly turning toward campers and trailers and probably would purchase most of their supplies near home.

(g) Soil compaction would occur in areas where use is concentrated (campsites, picnic areas, trails, etc.) but would be negligible on the remainder of the area.

(h) Public use of roads during wet weather would cause increased erosion. If this were to occur, considerable road maintenance costs could be expected.

(i) Public access would be provided to 10,000 acres of presently inaccessible national resource lands.

b. Mitigating Measures

(1) Road Improvement and Maintenance

(a) Road improvement work would be done to Bureau road standards and specifications, keeping the road as narrow as possible for the anticipated needs and safety required.

(b) Cutbanks, fills and other disturbed areas would be mulched and revegetated when improvement is completed to provide immediate cover for protection from rains and surface runoff. Road disturbance reseeding benefits would be maximized by including some of all of the following seed species in the seed misture: lana vetch, birdsfoot trefoil, burnet, harding grass, and alfalfa or clover species.

(c) Only clearing that is absolutely essential for road improvement would be done.

(d) All road excavation would be done during the dry season to prevent soil damage and erosion. Clearing and slash disposal could be carried out during wet weather.

(e) Proper maintenance schedules would be followed to prevent plugging of ditches and culverts.

(f) Turnouts would be constructed on all blind curves and other locations deemed necessary to provide safe passage of vehicles moving in opposing directions.

(g) Berms would be constructed, where necessary, to prevent erosion of embankments.

(h) Improvement and maintenance equipment would comply with federal and state laws governing air quality and noise output.

(2) Public Use

(a) Preparation and implementation of a Recreation Management Plan would minimize the impacts of increased public use of the area. Until such a plan is prepared, the area would not be open to public use.

(b) Sheriff's patrol of the area would be provided. The Mendocino County Sheriff has been contacted and is willing to agree to service the area, without charge. In the case of serious offenses, suspects could be held for Trinity County authorities.

(c) Public use would be limited to dry seasons of the year. This would eliminate excessive erosion on the roadway and other use areas.

(d) Specific areas would be designated for public use, adequate sanitary facilities and refuse disposal would be provided and litter pickup would be provided at regular intervals.

(e) Right-of-way boundaries and public lands would be identified so that accidental trespassing on private lands would be minimal

(f) The public would be cautioned about disturbing eagles and hawks, particularly during the March - July nesting period.

12

(g) To mitigate the possible disturbance of seasonal movement patterns of the deer herd, the mainline road would be closed from November to March.

c. Adverse Impacts Which Cannot be Avoided Should the Alternative be Implemented

Adverse impacts which cannot be avoided will be identical to those discussed in the "no-action" alternative.

In addition, the fire hazard will be increased considerably because of increased use, without improving fire suppression time.

B. ALTERNATIVE ROUTES CONSIDERED

Four access routes were investigated as means of providing access to the Big Butte area. Of these, the proposed route, as described on page 3 is considered to be the least damaging to the environment.

The environmental impacts of constructing a road on the proposed location are discussed in the proposed action. In contrast to the other routes, it will neither cross major streams, nor will it be visible from the wilderness area (if it is not extended east of Bull Ridge).

The three other alternate routes considered are:

Reference to MAP

1. Indian Dick Road Extension (A)

This route begins at the end of the Forest Service controlled road (1 N 02) in the NW 1/4 of Section 22, T. 25 N., R. 11 W., M.D.M. and courses in a northerly direction towards a landmark known as Morrison Camp, with an eventual tie to the Six Rivers National Forest system on the north. This road would be an interforest road system located entirely within the National Forest boundaries. In order to develop national resource lands, a spur road would have to be constructed westward from Morrison Camp to Big Butte.

This route traverses extremely rugged terrain and would require crossing the Middle Fork of the Eel River. Soils along this route are complex and the possibility of slumps and slides is high. High sediment yield is probable. Some portions of this route could be visible from the Yolla Bolly Wilderness Area.

2. Hulls Creek Road Extension (B)

A county road ends at Hulls Creek, 25 miles north of Covelo, in Section 27, T. 5 S., R. 8 E., H.M. From this county road an existing steep and narrow private road runs northeasterly three miles to a ridgetop. It would be necessary to construct nine miles of new road across BLM and private lands to reach the timber sale area in Section 24, T. 25 N., R. 12 W., M.D.M. At least 5 miles of the proposed new construction would also be required, in addition to these 9 miles, to obtain adequate development of the national resource lands. Sedimentation would, therefore, be greater than on the Big Butte road. The route would cross unstable hillsides and extremely rocky terrain and would also require crossing

of Antone and Lynch Creeks.

3. Four Corners Rock Extension (C)

This route would require extending the Forest Service Four Corners Rock Road (27 N 02) from Section 23, T. 26 N., R. 12 W., M.D.M., across four miles of National Forest to reach Big Butte. An additional four miles of road construction across private lands would be needed to reach timber sale area. It would also produce

what about "D" shown on Map 3

IX. CONSULTATION AND COORDINATION WITH OTHERS

A. Consultation and Coordination in the Development of the Proposal and in the Preparation of the Draft Environmental Statement.

In developing the proposed timber sale, the Bureau's proposals were closely coordinated with the plans and expectations of the Mendocino National Forest. A forest service engineering geologist participated in an evaluation of the access route and changes in road location were made as a result of this analysis.

The Mendocino County Sheriff was contacted to determine whether a cooperative agreement could be developed for patrol of the Trinity County portion of the Big Butte area. The Mendocino County Sheriff indicated a willingness to patrol the area and reached an agreement with Trinity County authorities.

Bureau personnel participated in several meetings with the Trinity County Board of Supervisors and other State, Federal, and local governmental agencies. Meetings were held with the adjacent land owners and local conservation organizations.

Governmental agencies and other interests consulted in the development of the proposed action and in the preparation of the draft environmental statement include:

Forest Service, Mendocino National Forest

Soil Conservation Service

Bureau of Indian Affairs

California Department of Fish and Game

Mendocino County Agencies

Mendocino County Board of Supervisors

Trinity County Board of Supervisors

Northern California County Supervisors' Association

North Coast Rivers Association

Sierra Club, Legal Defense Fund

Sierra Club, Redwood Chapter

Crawford Lumber Company

Louisiana-Pacific Corporation

Mr. Richard A. Wilson

B. Comments were requested from the following federal, state, local governmental agencies and individuals. Public requests resulted in distribution of a total of 150 copies. Comments were received from those agencies and individuals indicated below with an asterisk.

Federal Agencies

Environmental Protection Agency*

U.S.D.A., Agricultural Research Service*

U.S.D.A., Forest Service*

U.S.D.A., Soil Conservation Service*

U.S.D.I., Office of Environmental Project Review

U.S.D.I., Bureau of Indian Affairs, Bureau of Outdoor Recreation,* Bureau of Sport Fisheries and Wildlife,* Geological Survey,* National Park Service*

State Agencies

Office of Planning and Research, Office of the Governor (State Clearinghouse)*

Local Government

Mendocino County Board of Supervisors

Trinity County Board of Supervisors*

Organizations and Individuals

Louisiana-Pacific Corporation

Northern California County Supervisor's Association

North Coast Rivers Association*

Sierra Club - Legal Defense Fund

Sierra Club - Redwood Chapter

Society of American Foresters, Northern California Section

Society of American Foresters, Jedediah Smith Chapter

The Wildlife Society, Sacramento Chapter

Mr. Stephen Birdelbough

Mr. John Brady

Mr. Hamilton Budge*

Mr. Ken Lytle

Mr. Daniel Ruggles

Mr. Richard Wilson*

C. Comments Received

Copies of comments received in response to draft environmental statement are included in the following pages. Comments were analyzed to determine needed revision and necessary clarifications in the environmental statement. The response to each comment is on a separate sheet, following each comment:

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
WESTERN REGION
2850 TELEGRAPH AVENUE
BERKELEY, CALIFORNIA 94705

To		Initial	Date
7	SD	[illegible]	4-1
2	ASD	JMR	4-1
	MS		
	RES		
	TS		
	PA		
3	PCS	[illegible]	4/3
	DES		

Action By ________
Return to ________

RECEIVED
BUR OF LAND MGMT
APR 1 9 33 AM '74
CALIF. STATE OFFICE
SACRAMENTO, CALIF.

March 29, 1974

Mr. J. E. Penny
State Director
Bureau of Land Management
2800 Cottage Way, Rm. E-2841
Sacramento, California 95825

Dear Mr. Penny:

In accordance with your request of March 4, 1974, the Agricultural Research Service has reviewed the Draft Environmental Impact Statement on the proposed construction of access roads and the plan to initiate a forest and land management program on BLM land in the Big Butte area.

We have limited our review to the environmental impact the proposed BLM project would have on the agricultural interests of the area, principally the livestock industry. The conservation measures and practices described in the project plans should be adequate to reduce the initial erosion and sedimentation, and adequately control erosion within a year or two after construction work has been completed. We would, however, suggest a somewhat greater emphasis on the importance of maintenance work required after the various structures have been installed during the road construction phase of this project. 1 You may also wish to give additional consideration to the adverse impact of off-road vehicle use. On page 53 of the EIS, acknowledgement is made of the fact that the severity of these impacts is unknown, and it was recognized that off-road vehicle use will generate an increase in erosion and sedimentation. Possible impact or long term effects of this on downstream water use by agriculture and other interests might well receive additional consideration in the Statement. 2

In summary, we do not feel that there are any significant environmental hazards involved which would adversely affect the agriculture of the area.

We appreciate the opportunity to review and comment on this Statement.

Sincerely,

Fred Strauch

Fred Strauch
Assistant to Deputy Administrator

Comments from: United States Department of Agriculture,
Agricultural Research Service

1. ARS suggested that a greater emphasis be placed on the importance of maintenance work. The final statement has been revised to incorporate this suggestion.

2. ARS suggested that additional emphasis be placed on the adverse impacts resulting from off-road vehicle use. Off-road vehicle use of the area will not be allowed until a Recreation Management Plan is completed. This plan will consider whether off-road vehicles shall be allowed in the area and will classify the area into zones of "open," "closed," or "restricted" use categories. If allowed, what impacts?

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
630 Sansome Street
San Francisco, California 94111

RECEIVED
BUR OF LAND MGMT
MAY 24 9 00 AM '74
CALIF. ST
SACRAME

8420

May 15, 1974

To		Initial	Date
	SD		
	ASD		
	MS		
	RES		
	TS		
	PA		
/	PCS		5/30
	DES		

Action By ________
Return to ________

Mr. J. R. Penny, State Director
Bureau of Land Management
2800 Cottage Way, Room E-2841
Sacramento, California 95825

Dear Mr. Penny:

As you requested, the Forest Service has reviewed your draft environmental statement on the proposed Big Butte Timber Sale, in Mendocino and Trinity Counties, California (USDI DES 74-13). The Big Butte area, as noted in your environmental statement, is adjacent to the Red Mountain inventoried roadless area on the Six Rivers National Forest and to the Shinbone and Castle Peak inventoried roadless areas on the Mendocino National Forest.

Page 7 indicates that the Forest Service is considering an extension of the Yolla Bolly-Middle Eel Wilderness into the Shinbone area. Future management options for the Shinbone area, including maintenance of its wilderness character, will be discussed as plans for the Middle Eel Planning Unit are developed by the Mendocino National Forest. Different levels of timber resource outputs and transportation needs will also be among the options to be considered in the planning process.

The road access alternatives considered include two which, if developed, would cross National Forest inventoried roadless areas - the Indian Dick Road Extension and the Four Corners Rock Extension. Because of Forest Service policy, as stated on page 8 of the environmental statement, neither of these possible alternative routes could be constructed without completion of an environmental statement assessing the effect of the proposed road upon the wilderness character of the inventoried roadless areas.

Our comments on the environmental statement itself follow. The section on Biotic Components includes a good general description of ecological processes. The discussions of vegetative succession, fire relationships, and bark beetles are well stated and bear upon the decision to be made.

Comments from: United States Department of Agriculture,
Agricultural Research Service

3. Our contacts with the Covelo Ranger District indicated that there is a 10% increase in use in the District and that use of the Yolla Bolly Wilderness Area is increasing at a rate of about 20%.

4. A more detailed discussion of environmental impacts, particularly secondary impacts of soil erosion is included. The discussion of the impacts upon wildlife, fisheries, and other forest values has been expanded throughout the statement.

5. Soil instability in this area appears to be associated primarily with the Hulls and Laughlin soil series, both grassland soils. There is of course a possibility of soil slippage on skid trails in the steeper areas of the timber harvest units. The major soil problem in the area, however, is associated with construction of the access road. The road location was reviewed by an engineering geologist from the Mendocino National Forest. He suggested certain modifications in road alignment and his suggestions were followed in staking the road location.

6. This suggestion is well taken and the statement has been revised to indicate that road excavation will be conducted during the dry season.

Recreation statistics for the Mendocino National Forest indicate that recreation use, including use at developed sites, has been going down, not increasing as stated on page 35. 3

Concerning discussion of environmental impacts, we think more information on certain specific site-related expected effects would be extremely helpful. Especially noticeable is the lack of detailed discussion of the potential impact of soil erosion from road construction and logging upon other forest values such as high quality water and fisheries resources. The discussion of the turbidity of the water caused by erosion due to logging should be related to the spawning needs of anadromous fish. Also, there should be some discussion of turbidity relative to state and local water quality standards. 4

Landslides and soil slippage appear to be potential problems in this area. It is not clear whether the project area was studied in depth for this problem. Timber harvesting activities, as well as road construction, may increase probabilities of landslide and soil slippage. Analysis of this aspect for the entire project area seems appropriate. 5

Page 57 states that: "All road construction will be done during the dry season to prevent soil damage and erosion." A substantial amount of work, such as clearing and burning, can be done in other than the dry season. 6

It is stated on page 60 that: "Roads will be watered or oiled during period of log hauling to abate dust." Use of oil is preferable to water. Watering, over a short period, tends to break down the soil structure causing more dust. 7

It is recommended that the road surface: (1) Provide enough strength and resistance to weathering and displacement of material during the season of use to accommodate the anticipated types and volumes of traffic; and (2) Control within set limits the adverse effects of dusting, rutting, surface erosion, siltation and settlement. 8

The Mitigating Measures section could be strengthened by mentioning possible re-stocking problems where group selection is used. If natural regeneration is not satisfactory in these areas, provision should be made for artificial regeneration. Also, the third sentence under Item 7 at the top of page 60 reads as an unnecessary over-generalization. You might consider re-wording the sentence 9

7. Our present plans provide for the use of watering trucks during hauling operations over the access road. However, the use of oil as an alternative dust abatement measure will be considered.

8. These recommendations will be considered in developing road construction specifications. It should be pointed out, however, that the existing 19 miles of access road is relatively stable and that rutting and surface erosion do not appear to have been a major problem.

9. The possible problems in securing natural regeneration using the group selection system and provisions for artificial regeneration when satisfactory re-stocking is not obtained are recognized. The statement has been revised to incorporate these suggestions.

10. The statement has been revised to indicate the increased fire hazard. There will be no immediate increase in fire risk since public use of the area will not be allowed until the Recreation Management Plan is prepared.

Then?

open, closed, or restricted

Public – Restrict

use by the public during dry season. –

11. The statement has been revised to include discussion of cultural resources and the impact of the proposal upon these resources.

12. The Forest Service indicated that the statement should discuss the increase in long-term productivity resulting from the initiation of forest management activities in the Big Butte Area. The statement has been revised to incorporate these considerations.

to indicate: "The selection system of cutting as described for this area may be more amenable to the planned recreation use than other systems of timber harvest." 10

The environmental statement contains a number of general references to Fire Management considerations for both the timber sale and road construction. Assuming that the Bureau of Land Management plans to dispose of the construction slash from road building and to reduce the volume of fuel resulting from timber harvesting, we would agree with these statements. However, unless the residue and slash cleanup required by Bureau of Land Management in its timber sale contracts is extensive, the remaining stand is more vulnerable to heavy fire losses for at least the next 30 years. Possibly the proposed Recreation Management Plan can speak to measures to mitigate increased fire risk from public use.

There is no reference to cultural resources in the statement. The area within and adjacent to the project area is likely to contain prehistoric and/or historic sites that might be adversely effected by the proposed project activities. To meet the requirements of NEPA, the Historic Preservation Act of 1966 and Executive Order 11593, we suggest that you consult the procedures listed by the Advisory Council on Historic Preservation in the Federal Register Vol. 39, No. 18 (Part II); pp. 3366-3370; January 25, 1974. 11

Page 51 of the environmental statement notes the favorable effect on overall vigor and productivity of the stand which will result from the removal of dead, dying and low vigor trees and the reduction of the possibility of a bark beetle epidemic. 12

Section VI, on the Relationship between Local Short-Term Uses and Maintenance and Enhancement of Long-Term Productivity, however, overlooks the opportunity to include mention of this increased long-term productivity. We believe the favorable effects to future productivity of putting this stand of large mature and overmature trees under management could be strengthened in this environmental statement, and should be discussed in greater depth in the Environmental Impact section as well.

Under the "No Action" alternative, you state that this alternative would have the least impact on the environment. This may be true, if qualified to read: "This alternative would have the least direct impact on the natural environment." Certainly, there could be a long-term, significant, but indirect impact of the no-action alternative, merely by failing to control the bark beetle infestation. 13

13. The Forest Service indicated that the impacts discussed under the "No action" alternative should be revised. The statement has been expanded, accordingly.

Also, the socioeconomic effects that would result if mill operations at Covelo were materially reduced, as discussed on page 67, seem to represent a significant effect on the socioeconomic environment of the Covelo area.

Our review indicates that the proposed timber sale will not have any serious adverse effects on the management of adjacent National Forest lands within the Six Rivers and Mendocino National Forests. We appreciate the opportunity to review this environmental statement and hope our comments are helpful to you in your decision-making process.

Sincerely,

DOUGLAS R. LEISZ
Regional Forester

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
P. O. Box 1019, Davis, CA 95616

RECEIVED
BUR OF LAND MGMT
APR 3 12 14 PM '74
CALIF. STATE OFFICE
SACRAMENTO, CALIF.

April 1, 1974

To		Initial	Date
	SO		
1	ASD	JM	4/3
	MS		
	RES		
	TS		
	PA		
2	PCS	AW	4/5
	DES		

Action By 2
Return to

Mr. J. L. Penney
State Director
U.S. Department of the Interior
Bureau of Land Management
Federal Office Building
Room E-2841, 2800 Cottage Way
Sacramento, California 95825

Dear Mr. Penney:

The Soil Conservation Service has received the draft environmental impact statement "Proposed Big Butte Timber Sale, Mendocino and Trinity Counties, California" for review and comment.

Our review indicates that items within the realm of Soil Conservation Service expertise and responsibility have been adequately treated. Carrying out the proposal will have no direct effect on Soil Conservation Service programs.

We do feel that better vegetative species may be available for revegetating cuts and fill areas than is listed under item 7, page 56 of the draft statement. You may find it expedient to contact our field office in Ukiah to discuss alternatives for revegetating disturbed areas. 14

We appreciate the opportunity provided for review and comment.

Sincerely,

G. H. STONE
State Conservationist

cc: Ray Borchard, SCS, Santa Rosa
(Attn Sherman Finch)
Richard Call, SCS, Red Bluff

Comments from: United States Department of the Interior

Soil Conservation Service

14. A revised list is included in the Mitigation section.

PC 5

To		Initial	Date
	SD		
/	ASD	R	5/7
	MS		
	RFS		
	TS		
	PA		
&	PCS	m	5h
	DES		

Action By 2!

Return to

cc
DM, Ukiah
Chief, Resources

RECEIVED
MAY 6 9 29 AM '74
CALIF. STATE OFFICE
SACRAMENTO, CALIF.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
100 CALIFORNIA STREET
SAN FRANCISCO, CALIFORNIA 94111

MAY 1 1974

Mr. J. R. Penny, State Director
Bureau of Land Management
2800 Cottage Way
Sacramento CA 95825

Dear Mr. Penny:

The Environmental Protection Agency has received and reviewed the draft environmental impact statement for the following proposed project, Big Butte Timber Sale, Mendocino and Trinity Counties, California.

EPA's comments on the draft statement have been classified as Category ER-2, specifically environmental reservations on the proposed action. Definitions of the categories are provided on the enclosure and our extensive comments will be found on a second enclosure. The classification and the date of EPA's comments will be published in the Federal Register in accordance with our responsibility to inform the public of our views on proposed Federal actions under Section 309 of the Clean Air Act. Our procedure is to categorize our comments on both the environmental consequences of the proposed action and the adequacy of the impact statement at the draft stage.

EPA appreciates the opportunity to comment on this draft statement and requests two copies of the final statement when available.

Sincerely,

Paul De Falco, Jr.

Paul De Falco, Jr.
Regional Administrator

cc: Council on Environmental Quality, Wash., D.C. 20460
Attn: Editor, 102 Monitor

Environmental Impact of the Action

LO--Lack of Objections

EPA has no objections to the proposed action as described in the draft impact statement; or suggests only minor changes in the proposed action.

ER--Environmental Reservations

EPA has reservations concerning the environmental effects of certain aspects of the proposed action. EPA believes that further study of suggested alternatives or modifications is required and has asked the originating Federal agency to reassess these aspects.

EU--Environmentally Unsatisfactory

EPA believes that the proposed action is unsatisfactory because of its potentially harmful effect on the environment. Furthermore, the Agency believes that the potential safeguards which might be utilized may not adequately protect the environment from hazards arising from this action. The Agency recommends that alternatives to the action be analyzed further (including the possibility of no action at all).

Adequacy of the Impact Statement

Category 1--Adequate

The draft impact statement adequately sets forth the environmental impact of the proposed project or action as well as alternatives reasonably available to the project or action.

Category 2--Insufficient Information

EPA believes that the draft impact statement does not contain sufficient information to assess fully the environmental impact of the proposed project or action. However, from the information submitted, the Agency is able to make a preliminary determination of the impact on the environment. EPA has requested that the originator provide the information that was not included in the draft statement.

Category 3--Inadequate

EPA believes that the draft impact statement does not adequately assess the environmental impact of the proposed project or action, or that the statement inadequately analyzes reasonably available alternatives. The Agency has requested more information and analysis concerning the potential environmental hazards and has asked that substantial revision be made to the impact statement.

If a draft impact statement is assigned a Category 3, no rating will be made of the project or action, since a basis does not generally exist on which to make such a determination.

Comments on the draft environmental statement for the Proposed Big Butte Timber Sale.

The proposed action involves a series of projects including improvement of 19 miles of existing road, construction of 8 miles of new road, timber sales on national resource lands, and granting of a right-of-way permit to Louisiana-Pacific Corporation to utilize the above access road in order to harvest timber on privately owned lands. The draft environmental statement acknowledges the significant adverse environmental impacts upon water quality due to increased stream sedimentation.

Despite the lack of specific and detailed information and maps on road alignment, cross slopes, stream crossings, and drainage patterns, and on the site characteristics at the BLM timber harvest area, it appears that the mitigating measures set forth are reasonable, provided they are carefully implemented. EPA suggests that consideration also be given to the following types of mitigating measures in areas which exhibit the highest and most direct danger of stream sedimentation:

1. Providing settling ponds and debris basins to intercept the erosion products and prevent their entry into adjacent streams. Provisions for clean-out and disposition of spoil should be set forth. 15

2. Pre-project and post-project water quality monitoring should be established. Compliance with the very restrictive water quality objectives specified by the North Coast Regional Water Quality Control Board mandates that careful surveillance of stream conditions be carried out. 16

3. In the event of damage to a stream due to high runoff and erosion caused by storm conditions, a contingency plan for immediate clean-up should be available in order to restore damaged streams. 17

While acknowledging the threat to water quality due to road construction and timber harvesting, statements are made that stream sedimentation and turbidity will return to "background" levels in roughly two years. Documentation of these statements is warranted to substantiate the important assertion that the water quality impacts are short-term rather than long-term. 18

The environmental impacts of timber harvesting appear to pertain only to the sale of 6,600 MBF of timber from the 300 acres of BLM's national resource lands. The environmental impact of logging operations by Louisiana-Pacific on the private lands is not specifically discussed in the environmental statement. Since the logging of private lands is contingent upon BLM's issuance of a right-of-way permit (and improving the access roads), and the 30MMBF timber harvest on private lands can be expected to yield proportionately larger environmental impacts, the lack of full discussion and disclosure of this activity represents a serious omission in the draft environmental statement. 19

Comments from: Environmental Protection Agency

Environmental Protection Agency

15. In general, these facilities are not needed because of the heavy layer of litter and duff in the timber areas. Where appropriate these facilities will be employed.

16. The remoteness of the timber sale area precludes monitoring at critical periods except through the use of helicopters or by walking a distance of approximately twenty miles. Stream sedimentation will undoubtedly be the dominant water quality impact and will occur only during periods of heavy precipitation and run-off. Therefore, establishment of an effective water quality monitoring system is impractical.

what about water quality monitoring station on Hells Creek at its jct. w/ the Eel River.

17. All debris in ephemeral drainages or near perennial streams with potential for serious impact on water quality will be removed prior to completion of the timber sale.

what about Pvt lands ?

18. This estimate is based upon discussions between the Ukiah District and California State Office watershed specialists and represents the Bureau's best estimate of site recovery.

check F.S. as source of data to support premis

19. The logging of private lands is not directly tied to the proposed action. It is considered inappropriate for the United States to attempt

to control use of private lands through its authority to issue rights-of-way. Since Congress has not seen fit to give the Secretary of the Interior the authority to make local land use decisions, discussion of the environmental impacts of logging on these lands is not relevant to the Federal decisions that must be made, therefore, the environmental impact statement discusses only the on-site impacts of granting a right-of-way to the Louisiana Pacific Corporation. Environmental values must be considered in preparing timber harvest plans on private lands, as required by the California Forest Practices Act. The Bureau recognizes that questions of land use in the Big Butte area are interrelated and has cooperated with adjacent landowners and other Federal Agencies in determining appropriate coordination of management activities. This cooperation will continue.

~~[illegible]~~

~~[illegible]~~

R/w strips for power lines results in this same type of control whether it crosses State, Pvt or Federal land.

[illegible]

[illegible] the new type [illegible]

[illegible] Styles, [illegible]

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

1500 N. E. IRVING STREET
P. O. BOX 3737
PORTLAND, OREGON 97208

RECEIVED
BUR OF LAND MGMT
MAY 24 12 41 PM '74
CALIF. STATE OFFICE
SACRAMENTO, CALIF.

To		Initial	Date
2	SD		
3	ASD		
	MS		
	RES		
	TS		
	PA		
1	PCS	[illegible]	5/29
	DES		

Action By
Return to

Reference: RBS

May 22, 1974

To: State Director, Bureau of Land Management
Sacramento, California

From: Deputy Regional Director, BSFW, Portland, Oregon

Subject: Draft Environmental Impact Statement on Proposed Big Butte Timber Sale, Mendocino and Trinity Counties, California (DES 74-13)

This responds to your memorandum of March 4, requesting review and comment on subject draft.

We believe the statement adequately covers matters of jurisdictional concern to this Bureau.

L. Edward Perry

L. Edward Perry

United States Department of the Interior
GEOLOGICAL SURVEY
RESTON, VIRGINIA 22092

OFFICE OF THE DIRECTOR

DES 74-13

RECEIVED
BUR OF LAND MGMT
JUN 10 1 47 PM '74
CALIF. STATE OFFICE
SACRAMENTO, CALIF.

To		Initial	Date
1	SD		6-11
Ret. 2	ASD		
	MS		
	RES		
	TS		
	PA		
3	PCS		
	DES		

Action By ________
Return to ________

JUN 3 1974

Memorandum

To: State Director, Bureau of Land Management
Sacramento, California

Through: Assistant Secretary--Energy and Minerals JUN 6 1974

From: Director, Geological Survey

Subject: Review of draft environmental statement on proposed Big Butte Timber Sale, Mendocino and Trinity Counties, California

We have reviewed the subject draft environmental statement as requested and we offer the following comments.

It is stated in the first sentence of the summary that the proposed action includes development of public access. This statement appears to be misleading since it is stated later that "public use of the area will be allowed, but only after a Recreation Management Plan has been completed" (p. 5, #4). Review of the environmental statement suggests that the improvement of public access would be a purely incidental result of the timber sale as now proposed. It has been noted that controversy was generated by the proposed action (p. 7, paragraph 1), and that the controversy was evidently generated by adverse reaction to increased public access (p. 52, paragraph 1). Consequently, it might be advantageous to eliminate the unresolved problems of public access from the present statement in order to avoid unnecessary opposition to the timber sale, which is said to be urgently needed (p. 6-7, sec. C; p. 9, paragraph 1), and in order to forestall any environmental damage that might result from such increased access until the impact can be fully studied. 26

Simple solutions to the problem of increased public use as a result of constructing logging roads have been described in a number of environmental statements and we suggest consideration of such solutions in this impact statement. Since the proposed road would be a dead-end road, a locked gate at the point where the road enters National Resource Lands might be considered. Denial of public access by vehicles to the new road

would also seem to be consistent with the facts that a multiple-use plan for the Big Butte area will not be completed until 1975, detailed forest management plans will not be completed until still later (p. 2), and the unstable soils and geologic conditions in the area would warrant prohibition of unnecessary traffic at least until such plans have been completed and their environmental impacts have been analyzed. 20 (cont.)

The most detailed map (map 4 on p. 15) is confusing in some respects and the following changes might be considered for greater clarity. Patterns or lines shown on the map but not identified in the legend include the boundaries of roadless areas, boundary between two counties, and two types of unidentified heavy lines that appear in the southern part of the map. Numbers one to three, representing roadless areas, would be easier to locate if similar symbols were used on map and legend. It would be helpful to show the scale on this and on the other maps. 21 X

The statement includes an apparent inconsistency regarding an access road into the area east of Bull Ridge. It is stated on page 46 (#8) that "an extension of the road east of Bull Ridge will be visible from the existing Yolla Bolly Wilderness Area and will, therefore, detract from the quality of the wilderness experience." However, it is stated on page 58 (#21) that "impacts upon the Yolla Bolly Wilderness Area and the roadless area in the vicinity of Shinbone Ridge will be minimized by deleting the planned extension of the Big Butte road into the area east of Bull Ridge." 22.

Henry W. Coulter

Acting Director

Comments from: United States Department of the Interior

Geological Survey

20. Public access into the area will not be allowed until completion of a Recreation Management Plan, as is discussed in the draft statement. Bureau access policy requires that we secure permanent exclusive rights into the area for the United States. Because of the controversial nature of the public access question, it was decided to treat the impacts of increased public use in this statement even though public access would not be immediately allowed; and, depending upon the results of the Recreation Management Plan, may never be allowed or may be allowed only under stringent controls. Locked gates or other means of controlling access will be employed as necessary to limit access during the interim period.

21. Others have commented upon the inability to follow detailed information on the small scale map provided. Revised, larger scale maps, are included in the final statement.

22. The apparent confusion is caused by the structure of the impact statement. In Section III we are talking about impacts that would occur without any mitigation. The extension east of Bull Ridge is deleted in Section IV on Mitigation.

United States Department of the Interior
NATIONAL PARK SERVICE
WESTERN REGION
450 GOLDEN GATE AVENUE, BOX 36063
SAN FRANCISCO, CALIFORNIA 94102

RECEIVED
BUR OF LAND MGMT
APR 22 9 10 AM '74
CALIF. STATE OFFICE
SACRAMENTO, CALIF.

IN REPLY REFER TO:
L7619
(WR)PSE

April 18, 1974

To		Initial	Date
1	SD		4-2
Act-2	ASD		
	MS		
4	RES		
	TS		
	PA		
3	PCS		
	DES		

Action By ________
Return to ________

Memorandum

To: State Director, Bureau of Land Management, Sacramento, California

From: Associate Regional Director, Professional Services, Western Region, National Park Service

Subject: Draft Environmental Statement on Proposed Big Butte Timber Sale, Mendocino and Trinity Counties, California (DES 74-13)

We have reviewed the subject draft environmental statement and are pleased to offer these comments.

Comments on the Proposed Action

The proposed action would not affect any existing, proposed or known potential units of the National Park System, nor any National Historic, Natural or Environmental Education Landmarks.

Comments on the Draft Statement

The statement is inadequate in that it fails to provide substantive information regarding the project's impact upon historical and archeological resources; thus, these aspects of the proposed project can not be adequately assessed.

The statement fails to indicate that the State Historic Preservation Officer and the National Register of Historic Places were consulted to determine the presence or absence of properties either listed on or in the process of nomination to the National Register of Historic Places. 23

Since no substantive information on archeological resources is given in the draft statement, we are unable to evaluate the impact of the proposed project and its alternatives upon the archeological resource

base of the area. Although the draft statement indicates that the project area is characterized by rugged terrain, the presence of seeps, springs and perennial streams would have been a strong attraction to aboriginal populations. Thus, the project area has a high potential for the presence of archeological resources.

We recommend that before the initiation of any land surface altering activities (such as logging and constructing or improving of access roads), an archeological survey be conducted of these areas in compliance with section 2(a) of Executive Order 11593. The purpose of such a survey would be to identify, describe and evaluate all archeological resources that may be present in the project area. The results of the survey should be discussed in the final statement. 23

Bruce M. Kilgore

Bruce M. Kilgore

Comments from: United States Department of the Interior

National Park Service

23. Archeological surveys of the Big Butte Area have been made and have resulted in the identification of numerous sites that appear to qualify for nomination to the National Register of Historical Places. Construction of the proposed access road and logging of the timber will have an adverse affect on several of these sites. The final statement includes detailed description of the archeological resources and a discussion of the impact of the proposed action on these resources.

The State Historic Preservation Officer has been consulted and the Bureau is currently making a joint assessment with him of the National Register potential of the area and its possible potential nomination as an archeological district, as well as the effect of the proposal upon these sites.

Contact with state historical officer
Not noted in EIS

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF OUTDOOR RECREATION
PACIFIC SOUTHWEST REGIONAL OFFICE
BOX 36062
450 GOLDEN GATE AVENUE
SAN FRANCISCO, CALIFORNIA 94102

RECEIVED
BUR. OF LAND MGMT
APR 24 12 28 PM '74
CALIF. STATE OFFICE
SACRAMENTO, CALIF.

IN REPLY REFER TO:

E3035

April 24, 1974

To		Initial	Date
Ret- 1	SD		4/25
2	ASD		
	MS		
	RES		
	TS		
	PA		
3	PCS		4/29
	DES		

Action By B
Return to

Memorandum

To: State Director, Bureau of Land Management, Sacramento

cc: E. M. [illegible]
cc: Div of Res.

From: Acting Regional Director

Subject: March 4, 1974 Draft Environmental Impact Statement, Proposed Big Butte Timber Sale, Mendocino and Trinity Counties, California (DES 74-13)

The following are our comments on the subject statement, submitted by your March 4, 1974 memorandum to the Director, Bureau of Outdoor Recreation, Washington, D. C.

1. The statement should give adequate explanation as to why full planning for the area does not precede the action, at least insofar as it concerns use of the public lands. 24

2. It would seem necessary to consider environmental impacts of logging of private and Forest Service lands that would or could result from the proposed action. 25

3. The wildlife and primitive values indicated appear to warrant greater study and planning consideration in relation to the proposed development and utilization. ?

4. The discussion on ecological relationships is extremely good. If possible, greater emphasis should be given to the impact of the proposal on these relationships.

5. The evaluation of primitive and aesthetic factors is unusually perceptive and sensitive. Your astute treatment gives a well balanced presentation of intangible and economic considerations, which is rare in an environmental impact statement.

Reference NPS comments

Comments from: United States Department of the Interior

Bureau of Outdoor Recreation

24. Ideally, planning should be completed prior to taking an action that would change the status of an area. Since completion of the East Mendocino Management Framework Plan is scheduled this fiscal year, it would seem practical to defer the proposed action until the plan is completed. However, it should be noted that this action was first proposed as part of the fiscal year 1971 Timber Sale Plan. The Bureau also has a pending application from Louisiana-Pacific Corporation for a right-of-way permit. The scheduled completion of the Management Framework Plan was too far in the future at the time the action was first proposed. Deferring action until the completion of the Management Framework Plan is now included in Section I as part of the proposed action.

25. The BOR suggested that the environmental impact of logging on private and national forest lands should also be considered in the environmental statement. Since logging on lands in other ownerships or of lands that are administered by another agency are only peripherally related to the proposed action, we do not consider evaluation of the environmental impacts of this logging to be an appropriate function of this environmental statement.

?

26. The discussion of the on-site impacts of logging has been expanded.

6. The discussion in paragraph 9 on page 50 should expand on the nature of the on-site adverse impacts of logging. 26

7. Your descriptive information indicates that adverse effects involving recreation and primitive values and activities result more from the type of recreational use (off-road vehicle) proposed with the action more than from the amount of use. This conclusion should be clearly stated. 27

8. The statement should discuss the feasibility of prohibiting off-road vehicle use. 28

9. Alternative 2 should include a discussion of the adverse impact on recreation associated use and values.

10. Alternative 3 should evaluate the adverse nature of not allowing public access to public land when it is potentially available.

11. The analysis of alternative 5 does not give full weight to the benefit of preserving the primitive and aesthetic aspects and allowing public access. Descriptive information elsewhere in the report suggests that, from the point of view of recreation, this is the superior alternative. 29

12. There is a need for an alternative which would provide access for removal of only a portion of the timber or not extending the road beyond the timber.

Frank E. Sylvester

cc: Director, BOR, WASO

27. The statement has been corrected to more clearly state this conclusion.

28. Decisions on off-road vehicle use will not be made until a Recreation Management Plan is completed.

29. Where appropriate, changes have been made in the Alternatives Section.

MAN B. LIVERMORE, JR.
SECRETARY

rtment of Conservation
rtment of Fish and Game
rtment of Navigation and
on Development
rtment of Parks and Recreation
rtment of Water Resources

RONALD REAGAN
GOVERNOR OF
CALIFORNIA

OFFICE OF THE SECRETARY
RESOURCES BUILDING
1416 NINTH STREET
95814

Air Resources Board
Colorado River Board
San Francisco Bay Conservation and
Development Commission
Solid Waste Management Board
State Lands Commission
State Reclamation Board
State Water Resources Control Board
Regional Water Quality Control Boards

THE RESOURCES AGENCY OF CALIFORNIA
SACRAMENTO, CALIFORNIA

RECEIVED
BUR. OF LAND MGMT
MAY 31 9 15 AM '74
CALIF. STATE OFFICE
SACRAMENTO, CALIF.

MAY 29 1974

To		Initial	Date
1	SD		5-30
2	ASD		5/31
	MS		
	RES		
	TS		
	PA		
3	PCS		5/3
	DES		

Action By ________
Return to ________

Mr. J. Russell Penny, State Director
California State Office
Bureau of Land Management
U. S. Department of the Interior
2800 Cottage Way
Sacramento, CA 95825

Dear Mr. Penny:

Your draft Environmental Impact Statement for the Proposed Big Butte Timber Sale in Mendocino and Trinity Counties, submitted to the Office of Intergovernmental Management (State Clearinghouse) in the Governor's Office, has been reviewed by the state agencies concerned. This review fulfills the requirements under Part II of the U. S. Office of Management and Budget Circular A-95, and the National Environmental Policy Act of 1969.

The project has been reviewed by the Departments of Conservation, Fish and Game, Food and Agriculture, Parks and Recreation, Transportation, and Water Resources; the Coastal Zone Commission; the Fair Employment Practices Commission; the State Lands Commission; the Air Resources Board; and the State Water Resources Control Board.

We appreciate your efforts in preparing an Environmental Impact Statement of this high quality. However, we recommend that the project be delayed pending the completion of comprehensive planning in the Big Butte and surrounding areas. If the project must be completed at this time, we recommend that additional information be included in the statement which will permit a thorough review of water quality considerations. The statement should also include definite measures for the protection of historical and archaeological values. 30

Fish and Wildlife

The Big Butte area contains valuable fish and wildlife habitat that is highly sensitive to development. Excellent black-tailed deer habitat exists in the area that supports trophy-sized deer. The southern bald eagle, an endangered

species, occurs in the area, but its dependence upon local habitat has not been fully determined. In spite of unstable soils, fish habitat is relatively good because the area has not been developed.

The Big Butte area contains about 10,000 acres of national resource lands and lies within close proximity to the 111,000-acre Yolla Bolly Wilderness Area. Although a poor jeep road exists, for all practical purposes the area is roadless. The U. S. Forest Service administers three inventoried roadless areas that lie to the east and north of the Big Butte area. These are the Castle Peak, Shinbone Ridge, and Red Mountain roadless areas.

We understand that the Bureau of Land Management is conducting comprehensive land use planning for the East Mendocino Unit, which includes the Big Butte area. The Forest Service is or will be planning for the three nearby roadless areas. The proposed action should not be adopted until these plans are completed because its implementation may prejudice the development of comprehensive plans. A high degree of interagency coordination should be maintained in developing the comprehensive plans. Once the area is roaded, additional timber sales covering all of the area suitable for logging could be authorized. If that occurred, damage to fish and wildlife would be far greater and more long-lasting than indicated in the impact statement.

Not considered

In part, the proposed action and impact report seem to be predicated upon the need to harvest timber on private lands in the vicinity. That being the case, the report should mention that logging of unroaded areas is possible through the use of helicopters. The increased costs of helicopter logging may very well be more than offset by the savings of fish, wildlife, and other values.

Water Quality

The report is inadequate with regard to water quality considerations due to lack of specific measures for mitigation of the potential detrimental effects identified in the statement. The minimum information which must be submitted in order to consider this report sufficient includes:

.31

1. A suitable scale (2 or more inches to 1 mile) topographic map which clearly delineates:
    a. Access roads, haul roads, landings, skid trails, and stream crossings,
    b. Streams - permanent, intermittent, and ephemeral,
    c. Streamside vegetation protection zones, or buffer zones,
    d. Areas to be seeded in grass or trees,
    e. Location of slide areas, and
    f. Limits of logging operations.
2. A comprehensive report detailing the numerical parameters in item 1 above; i.e., distance from streams of buffer zone, application rates of seeds, etc.

3. A statement of the type of logging and the method of yarding for each specific area. 31

4. A statement on the use of pesticides, including their types, application rates, toxicity, control etc. 32

If this additional information indicates the need for regulation to protect water quality, it will be necessary to file a report of waste discharge with the California Regional Water Quality Control Board, North Coast Region, 2200 County Center Drive, Suite F, Santa Rosa, CA 95401

Cultural Values

If any threat to cultural (historical and archaeological) values is to be avoided, a careful evaluation of the site should be made by qualified professionals. We recommend that you contact the Department of Anthropology, California State College, Sonoma, Rohnert Park, CA 94927, for information concerning the project area.

? was this done?

The attached pages of specific comments of the Division of Forestry, Department of Conservation, are an integral part of this letter. It is suggested that for explanation of these comments you contact Mr. Franklin F. Frank, Program Planner, Division of Forestry, Department of Conservation, 1416 Ninth Street, Sacramento, CA 95814.

Thank you for the opportunity to review and comment upon the statement.

Sincerely yours,

N. B. LIVERMORE, JR.
Secretary for Resources

By Paul L. Clifton

Attachment

cc: Mr. Mark Briggs
Director of Management Systems
State Clearinghouse
Office of Planning and Research
1400 Tenth Street
Sacramento, CA 95814
(SCH No. 74031136)

Specific Comments on the
Draft Environmental Impact Statement
Proposed Big Butte Timber Sale
By Division of Forestry, Department of Conservation

1. This is a well organized report which provides effective documentation of many environmental impacts.

2. We like your approach to determination of erosion potential. Estimates of area of exposed soil and expected erosion are useful.

3. The specific mitigation measures listed are valuable information.

4. It would be useful to provide more documentation of estimates of sedimentation rates and recovery periods. The estimates cited on Pages 42, 43 and 47 appear extremely optimistic. 33

5. We would suggest that the final statement include better and more detailed maps of alternative routes and sale boundaries. Topographic and soil maps of the area would add to the effectiveness of the report. 34

6. It would be more convenient to the reader if timber volumes, area harvested, percent of harvest and residual stock were shown on one page. ?
Not addressed

7. On Page 56, we would suggest the use of energy dissipators to reduce potential erosion from culvert discharge. We would also recommend the use of annual grasses in your revegetation seed mixture. 35

8. On Page 60, we noted that the snag felling limitations appeared to restrictive. Each nest would require over 7 square miles of protection. 36

9. Perhaps the primary and secondary impacts of increased access to the wilderness area should be given more consideration on Page 63. 37

10. We have some question as to the hydrologic information presented on Page 64.

11. On Page 65, the figures on soil disturbance from road construction appear low. 38.

12. The expected annual loss of timber production for the no action alternative appears too high.
Not considered

13. On Page 67, item (e) appears to be an overstatement. Also, in the same coin, item 3 (b) on Page 68 appears to be an overstated impact.

Comments from: Resource Agency of California

30. Deferral of action until comprehensive planning is completed is treated in the discussion of the proposed action. The final statement has been revised to give more thorough treatment to water quality consideration. An expanded discussion of archeological values and the impact on these values is considered in the final statement.

31. The water resources control board, through the resource agency, indicated that a great deal of specific information would be needed to evaluate the impact on water quality. The information requested is not available at this time. Bureau timber sale planning does not include the specific types of information requested. (e.g. areas to be seeded in grass or trees are determined by the contract administrator during the course of the timber sale) Some additional information on the proposed sale has been added to the Description of the Proposed Actions.
Type of logging proposed and method of yarding has been included.

32. Pesticide use is not a part of the proposed action.

33. The estimates of sedimentation rates and of recovery periods were provided by Bureau watershed specialist. Some revision of these estimates has been made in the final environmental statement.

[illegible]

34. We concur that the maps included in the draft were of too small a scale to provide useful information. Expanded map coverage is included in the final environmental statement. Soils maps were available only for Mendocino County. The soils coverage has been extrapolated to cover that portion of the timber sale area lying in Trinity County.

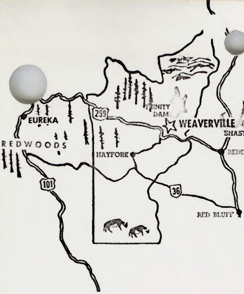
35. The statement has been revised to reflect these comments.

36. The estimate is based upon the opinion of Ukiah District wildlife specialists. However, since no eagle nests have been found in the Big Butte area, the effect is problematical.

37. Public access will not be allowed until a recreation management plan is completed.

38. Appropriate changes have been made in the statement.

Not entirely
annual losses
are not considered
for no action.



H RICAL
Trinity County
★ WEAVERVILLE, CALIFORNIA
96093

BOARD OF SUPERVISORS
BOX AK

RECEIVED
BUR OF LAND MGMT
APR 22 9 11 AM '74
CALIF. STATE OFFICE
SACRAMENTO, CALIF.

April 19, 1974

To		Initial	Date
1	SD		4-22
Rt- 2	ASD		
	MS		
4	RES		
	TS		
	PA		
3	PCS		
	DES		

Action By
Return to

United States Department of the Interior
Bureau of Land Management
Federal Office Building, Room E-2841
2800 Cottage Way
Sacramento, California 95825

Attention: Mr. I. R. Penny, State Director

Gentlemen:

The Board of Supervisors, on April 12, 1974, directed me to advise you that it approves the Environmental Impact Report covering the proposed Big Butte Timber Sale, Mendocino and Trinity Counties, California, and supports your proposed action.

Very truly yours,

TRINITY COUNTY BOARD OF SUPERVISORS

By Barbara M. Rhodes
Clerk of the Board

GRAZING • MINING • HUNTING • FISHING • LUMBER

iam R. Neill
DISTRICT ATTORNEY
Historical Trinity County

Court House Post Office Box 310
WEAVERVILLE, CALIFORNIA 96093
Telephone (916) 623-2031

RECEIVED
BUR. OF LAND MGMT
MAY 17 10 54 AM '74
CALIF. STATE OFFICE
SACRAMENTO, CALIF.

To		Initial	Date
	SD		
1	ASD	[illegible]	5/17
	MS		
	RES		
	TS		
	FA		
2	PCS	[illegible]	5/20
	DES		

Action By 2
Return to

May 16, 1974

State Director
Bureau of Land Management
2800 College Way, Rm. E2841
Sacramento, CA 95825

Dear Sir,

Re: Big Butte Draft Environmental Impact Statement.

In connection with the subject draft environment impact statement, I understand that no study has yet been made with regards to the demands for motorized recreation in the Big Butte Area. 39

This is of some concern to Law enforcement in Trinity County, since access to that area would be extremely difficult for Trinity County authorities, due to the fact that it would be necessary in order for Trinity County law enforcement to get into the area of Big Butte, should the be proposed roads be built to go into Mendocino County.

I believe that a conservative estimate at the time required to get into this area by the Sheriff's Office from Weaverville, the County seat of Trinity County, would be approximately 7 or 8 hours driving time. It would seem to me, that a public hearing would permit the public's participation in problems noted with the draft environmental impact, and accordingly I would request that public hearings be held and that Trinity County be advised of the date and time of such hearings.

Sincerely,

William R. Neill
District Attorney

WRN:ph
cc: Al Wilkins
Attorney at Law
Weaverville, CA 96093

Comments from: Trinity County District Attorney

39. The draft statement discussed a possible alternative of a cooperative agreement with Mendocino County authorities. In any event, public use of the area will not be authorized until a recreation management plan is completed. Coordination with local law enforcement authorities will be an integral part of the planning process.

Comments from: California Trout

40. The question of public access and use will not be resolved at this time. Following completion of a recreation management plan, decisions will be made on public access.

41. This estimate is based upon discussions between the Ukiah District and California State Office watershed specialists and represents the Bureau's best estimate of site recovery.

F.S. data available to support our position?

Natural Resources Defense Council, Inc.
664 Hamilton Avenue
Palo Alto, Calif. 94301
415 327-1080

New York Office
15 West 44th Street
New York, New York 10036
212 869-0150

Washington Office
1710 N Street, N.W.
Washington, D.C. 20036
202 783-5710

RECEIVED
BUR. OF LAND MGMT
JUN 6 12 23 PM '74
CALIF. STATE OFFICE
SACRAMENTO, CALIF.

To		Initial	Date
1	SD		6-6
2	ASD		6/10
	MS		
	RES		
	TS		
	PA		
3	PCS		6/11
	DES		

Action By 3
Return to

June 5, 1974

Bureau of Land Management
Department of the Interior
State Office
2800 Cottage Way
Sacramento, California 95825

ATTENTION: Mr. Albert E. Smith
Acting Chief, Planning Coordination Staff

Re: Comments on Proposed Big Butte Timber Sale Draft Environmental Impact Statement

Gentlemen:

Upon reviewing the above-captioned draft environmental impact statement concerning proposed road construction and sale of timber on public lands in the Big Butte area, we have concluded that it deals inadequately with several critical issues and alternatives. In particular, the statement fails to discuss thoroughly the loss of actual and potential wilderness values which will result from implementation of the proposal, and the potential long-range impact of the action on the economic development of the local community. In addition, the draft fails to explore the alternative of delaying the action for a short time until land use planning for the entire area is completed by the BLM and/or the Forest Service. We believe that further consideration of the adverse impacts of the action, and of the feasibility of alternative actions, is required prior to issuance of the final environmental impact statement. We will elaborate further on these points in what follows.

2.

1.

The draft statement acknowledges that the wilderness values of the Big Butte area, under BLM jurisdiction, are "good" (p. 38), and that they will be irretrievably lost if the proposed action is implemented. The statement also acknowledges that the proposed action may adversely affect the Forest Service's established wilderness preservation program. It concedes that implementation of the action "may adversely impact primitive values on adjacent roadless areas" currently being evaluated by the Forest Service for their wilderness potential. (p. 51). At the very least the proposed action clearly represents a

42

42 (cont.) significant encroachment upon the necessary buffer zone surrounding those areas. 1/ There is a real danger that the action will not only destroy a potential BLM wilderness area, but also effectively foreclose expansion of an established Forest Service wilderness. The draft does not fully explore these problems and the substantial environmental losses that will result from implementation of the proposed action.

43 Most significantly, the draft never considers the possibility of delaying implementation for a short time until the on-going long-range land use planning for the entire area is completed by one or both of the public agencies involved in its management. The draft concedes that both the BLM and the Forest Service are currently involved in such planning and that the BLM plan will be completed by June 1975. Moreover, the draft acknowledges that the action will affect future Forest Service decisions regarding management of adjacent areas, and that it "will, at least psychologically, constrain the [BLM's] choice of future management direction." (p. 2). In fact, the BLM's future choices will be more than "psychologically constrained" if the proposed plan is implemented, since the draft acknowledges elsewhere that the wilderness values of the Big Butte area will be permanently destroyed thereby. (p. 65).

44 It is equally obvious that other management options will also be substantially limited by implementation of the program. For example, the draft asserts that a recreation plan for the area will be developed after the "type and intensity of public use the area can support" are determined. (p. 5). Clearly the existence of a road into this area will affect those determinations regardless of the fact that the agency proposes to prohibit public access in the interim period.

45 The major justification for proceeding with the proposed action now in spite of its environmental impacts is to avoid the alleged economic consequences of delay. The statement repeatedly asserts that unless the action is taken now, operations at the Louisiana-Pacific Lumber Mill at Covelo may be shut down or reduced, creating serious economic dislocation in the community. Yet the draft wholly fails to document the immediate need of the company for either the public or private

---

1/ For example, timber cutting areas are within one-half mile of one roadless area. (p. 51).

timber involved in this action. In fact, we have been informed that the company apparently has contracted for sufficient timber to ensure operation of the mill at the present rate for at least eight more years. 45 (cont.)

Additionally, in asserting the need to sustain an economy based on logging, the draft fails to consider whether this action is in fact in the community's long-term economic interest. After reading the draft, one may logically conclude that Louisiana-Pacific has logged most of its private holdings in the Round Valley. Since the area's timber supply will continue to diminish, the community will have to develop other sources of income at some future time. Thus, this action not only merely postpones the inevitable, it may also effectively foreclose the development of one possible future income source -- a recreation industry dependent on preservation of wilderness values. The final statement should consider the proposed action in light of a potentially changing economic base in order to fully explore the relationship between its short- and long-term impacts on the community. 45 (cont.)

Unless the final statement can demonstrate that the asserted need for immediate implementation of the proposed action is in fact valid and clearly outweighs its adverse environmental impacts, delaying the action until completion of long-term land use planning is mandated by BLM policy. The Bureau's stated objective of its planning process is the identification and reconciliation of major land and resource conflicts and the development of a comprehensive long-range program to guide future actions. (See, e.g., BLM, Draft EIS Livestock Grazing Management on National Resource Lands (March 1974), pp. I-25-27.) Resolution of the conflicts between possible uses of this area thus requires completion of BLM planning, rather than the complete disregard for its values and goals which the draft evinces. If the BLM's land use planning system is to have any significance at all, it surely requires that important decisions that may encroach upon the options under consideration in that planning in fact await the completion of the land use plan.

Because of the important and controversial issues and resources involved in this situation, it is essential that the BLM hold a public hearing on the proposed action prior to its final decision. The agency has an obligation to the public to tender a full explanation of its position with respect to wilderness preservation and its own planning procedures as well as to maximize public participation in decisionmaking.

Should note Public meetings are part of MFP process.

Thank you for your consideration of these comments. We are looking forward to your response to our request for a public hearing. If we can be of any assistance in preparation of the final statement, please do not hesitate to call us.

Sincerely,

Roger Beers

Roger Beers

Johanna H Wald

Johanna H. Wald

RB:JHW:krc

cc: Rogers C. B. Morton
Curtis J. Berklund

7

Comments from: Natural Resources Defense Council, Inc.

42. The potential loss of wilderness on BLM lands is discussed in the environmental statement. The statement also discusses the impact of the proposed action upon the adjacent Forest Service inventoried roadless areas. As pointed out in the Forest Service comments, plans for these roadless areas will be developed in the context of the Forest Service land use planning system. The proposed action will have no direct effect upon these inventoried roadless areas. The indirect effects, resulting from the proposed action, are discussed in the environmental statement.

43. No decision on the proposed action will be made until a management framework plan for the East Mendocino planning unit is completed. It is scheduled for completion by June 1975.

44. The impact of the access road upon recreation use options is recognized in the environmental statement.

45. That portion of the statement dealing with the economic impacts of delaying a decision has been rewritten. The draft statement overstated these economic impacts.

The environmental statement is being developed for a single proposed timber sale. The considerations discussed in NRDC's letter involving

the economic base of the community and possible shifts in the economic base will be addressed in the development of the management framework plan for the East Mendocino unit.

NCRA

North Coast Rivers Association

CO-CHAIRMEN

HAZEL K. WILLBURN
Supervisor — Trinity County
Zenia

ALFRED S. WILKINS
Attorney
Weaverville

RECEIVED
BUREAU OF LAND MGMT
MAY 16 12 17 PM '74
CALIF. STATE OFFICE
SACRAMENTO, CALIF.

STEERING COMMITTEE

OHN D. LARKIN
Supervisor — Trinity County
Weaverville

OGER B. HARDISON
High School Teacher
Douglas City

OSEPH PAUL
Trout Unlimited
San Francisco

ICHARD WILSON
Save the Eel River Assn.
Covelo

LMER BAUER
Save the Eel River Assn.
Covelo

OBERT J. MORRIS, Ph. D.
Engineer
Weaverville

VILLIA[illegible]HT
Attor[illegible]
Lewiston

ENNETH R. MARTIN
Hoopa Valley
Business Council
Hoopa

OHN STOKES
Attorney
Arcata

ILAS B. VAN ZEE
Businessman
Willow Creek

OHN F. REGINATO
Shasta- Cascade
Wonderland Assn.
Redding

VERETT WATKINS
Dentist
Eureka

To		Initial	Date
Ret- 1	SD	JB	5/12
2	ASD		
	MS		
	RES		
	TS		
	PA		
3	PCS	am	5/21
	DCS		

Action By 3
Return to

May 14, 1974

State Director
Bureau of Land Management
2800 Cottage Way, Room E-2841
Sacramento, California 95825

Re: Big Butte Draft Environmental Impact Statement

Dear Sir:

We would like to make the following comments with respect to the above draft of the Environmental Impact Statement you have submitted. While this draft is more complete than the first draft prepared, it still leaves the reader without a clear picture of the relationship of the timber in question to the entire timber unit, and thus one cannot truly evaluate the impact of this timber sale on the general area and the economy of Covelo. 46

Of more importance, however, the report leaves unanswered the question as to why it is necessary to have a road meeting these standards when it is not ~~needed to remove the timber~~ and when it is obvious that the impact of such a road on the fragile wilderness will be ~~devastating and irreversible~~. Our inquiry ~~into~~ this matter indicates that the decision to have such a road is the result of a policy invoked some ten years ago without a full scale hearing. 47 Surely an organization such as yours, charged with the responsibility of managing lands of this country far into the future, is cognizant of the lasting effects this decision will have. If your organization could create the policy to begin with, it can, when the adverse consequences become apparent as they have in this case, revoke the policy or further define it to avoid such unnecessary waste.

There should be no problem in presenting the matter to the people at a public hearing. In attempting

State Director
Page 2
May 14, 1974

Re: Big Butte Draft Environmental Impact Statement

to avoid a public hearing, however, one wonders whether your organization, instead of protecting the environment in this case, is more concerned with protecting its own outdated policies.

MFP Process

We hereby request that a hearing be held upon the adequacy of this Environmental Impact Statement.

Very truly yours,

NORTH COAST RIVERS ASSOCIATION

By Alfred S. Wilkins
ALFRED S. WILKINS
Secretary

ASW:pm

Comments from: North Coast Rivers Association

46. The discussion in the final statement has been expanded to more clearly relate the BLM timber to the total timber supply situation in the area.

47. The proposed road is a 16-foot subgrade with 4-foot ditches. This is not a high standard road and, in fact, is the minimum standard necessary for safety.

need to be expanded.
why not a 12' or 14' with a 3' ditch.

Earl Bowker
Bx 81
Whitmore, Ca
96096

3-9-74

RECEIVED
BUR. OF LAND MGMT
MAR 12 12 38 PM '74
CALIF. STATE OFFICE
SACRAMENTO, CALIF.

To		Initial	Date
1	SD	JRB	3-14
	ASD		
	MS		
2	RES	wme	3/14
	TS		
	PA		
	PCS		
	DES		

Action By ______
Return to ______

Director
ureau Land Management
2800 - Cottage Way
acramento, Ca.

Dear Sirs;

I wish to take this portunity to make it loud and clear my opposition any proposal to build roads into the Big Butte ea of South Western Trinity county. Sleeping dogs cannot left alone can they? This is once again the eating of the drum of a certain large lumber ompany to con the BLM into building roads them at the tax payers expense, so they can t their timber out of an area "locked in so to speak government land.

any roads built into this ea would be a guilt edged invitation for hundreds off the road vehicles, motorcycles etc. to move in nd the fish and game would go out; peace and uiet would no longer prevail, fire hazards in eased many fold. Roads if they were

ushed in this far would never satisfy those certain road happy individuals, who no doubt fter a period of time would once again be eating the drum to push the roads still arther into the wilderness.

The Trinity county Board of pervisors have twice gone on record against e building of roads into this area, as well 49 various organizations. Lets keep this a ilderness area, there is little of it left this state.

Sincerely

Earl Bowker

Comments from: Earl Bowker

48. As is pointed out in the statement, no public access will be allowed until a recreation management plan is developed for this area.

49. See comments of Trinity County Board of Supervisors.

RECEIVED
BUR OF LAND MGMT
APR 4 10 53 AM '74
CALIF. STATE OFFICE
SACRAMENTO, CALIF.

4000 4th Ave., North
Great Falls, Montana
59401

California State Office, BLM
Federal Building
2800 Cottage Way
Sacramento, California
95825

April 1, 1974

Dear Sir;

I have reviewed the proposed Big Butte Timber Sale draft environmental impact statement. It appears from my reading that the diverse interrelationships of the ecosystem involved have not been carefully studied. Likewise, it appears that the effects of roadbuilding and the proposed timber sale are not well understood and the effect on the roadless qualities is given minimal consideration. 50 Until such time as these unknowns become known to a greater degree than is indicated in this statement the most appropriate management direction can only be that of leaving the area as it is. Therefore, I endorse alternative 1, NO ACTION at this point in time.

Sincerely,

Thomas E. Horobik

Thomas E. Horobik

Comments from: Thomas E. Horobik

50. Sufficient information on ecosystem interrelationships is known to allow an informed decision on the proposed timber sale. Additional information is included on the effects of road-building and on the primitive qualities of the area.

RECEIVED
BUR OF LAND MGMT
MAY 15 12 25 PM '74
CALIF. STATE OFFICE
SACRAMENTO, CALIF.

To		Initial	Date
1	SD		5-16
2	ASO	B	5/16
	MS		
	RES		
	TS		
	PA		
3	PCS	Ail	5/16
	DES		

Action By B
Return to

CC

May 13, 1974

To:
State Director
Bureau of Land Management
2800 Cottage Way
Sacramento, California 95825

Subject:
Comments on the Department of the Interior, Draft Environmental Statement, DES 74-13 - Proposed BIG BUTTE TIMBER SALE, CALIFORNIA- Prepared by California State Office, Bureau Of Land Management, Sacramento, California.

Comments:

1. Page 4, para 2c., "All new cut and fill slopes will be stabilized and drainage installed under the construction contract. This statmment is of particular interest in light of the statement on page 12 and 13"All of these soils are relatively stable in an undisturbed condition, exibiting only slight soil movement, but are susceptible to severe erosion when vegetative cover and litter are removed!' Queation: You have established the idea that the soils are indeed unstable, what precautions will be taken in timber harvesting and road construction to guarantee that work is done according to specific stated standards? Will Louisiana-Pacific Corporation post a bond to guarantee compliance with your regulations. 51

2. Will BLM conduct public hearings at the time that a Recreation Management Plan is Developed? - page 5 Public use 52

3. Page 5 para 5, Will Louisiana-Pacific Corporation be charged a fee for the right of way permit? If not why? 53

4. Page 7, D,1.Shinbone Ridge is 1st quality wilderness for which the only management consideration should be it's inclusion in an expanded Yolla Bolly Wilderness.

5. Page 8, The Forest Service and the Bureau are to be complemented for agreeing to defer development of national resource lands east of Bull Ridge until the Forest Service has finalized its plans for the Shinbone Ridge.

6. Page 9, Richard A. Wilson property. I have toured Mr. Wilsons property at Henthorne Lake and am impressed by the ruggedness of the terrain with its steep slopes and numerous small streams. I question the ability of the Louisiana-Pacific Corp. to harvest the timber on the property whithout causing serious erousion and siltation on the Eel Rive in this area of great importance to the Steelhead fishery. If the use of this property must be changed at all it would seem that the types of uses recomended by Lord Tyrrell and Associates would be most appropiate.

7. Page 18, An EIR that lack a population inventory of vegetative species is seriously deficient. What effect will your plans have on the vegetation that you dont know about? An EIR without facts is hardely an EIR at all. The draft EIR should not be adopted until a vegatative inventory is compleat and the findings and the effects of the project on these yet unknown plants are evaluated. 54

8. Page 19, Animals " The actual number of species inhabiting the Big Butte area is not known and no population studies have been conducted in the immediate area". Without an on site inventory how will you ever know how many rare and endangered species are in the area? How can you know the effects of this projects on an unknown species?

9. Page 23, On pages 18 and 19 you note the absence of on site inventorys of vegetative species and animal life. Since you have not conducted an inventory I agree that you have no way of knowing wither or not rare or endangered vegetative species or animal life are to be found in the project area.

10. Page 28, "The identification of dynamicpatterns is usually based upon time series analysis, requiring a program of data collection at regular intervals over an extended period of time. In Big Butte, we lack this contunity of data, so it is necessary to extend our essentially static observations to form broad hypotheses of trends in biotic composition and system function." Relationships without data are meaningless and only the product of simi scientific speculation.

11. page 32, Energy Flow " Several years of study would be needed to define the parameters of ecological processes in the Big Bute ecosystems. At this point, all we are able to do is generalize about the relationships between system components." Hardely an adequate statement when we consider from the statements on pages 18, 19,23, and 28 that we don't even know what the components are.

12. Page 35 access. I have traveled the trail from Morrison Camp in the National Forest to Big Butte and found no difficulty in following it or locating it's start.

13. I agree with the statement on page 35 that "Winter sports potential and suitability for off-road vehicles are very limited and these will probably not become important uses of the public lands."

13. page 35 the existing jeep trail would revert totaly within a very short span of time if blocked. The following statement that Yolla Bolly use is not as heavy as that experienced in the Sierras only underlines the truly remote wilderness quality of the area.

14. Page 38, "The overall opportunities for a primative experience are considered good on a poor-fair-good-excellent scale. Rating should be upgraded to excellent.

One of the basic issues involved IN evaluating this EIR is the apparent interest expressed by the Bureau of Land Management in maintaining the Louisiana-Pacific mill at Covelo, at it's current operational levels(two shifts a day). On page 68 it is further stated that the mill may shut down compleatly since there are no alternative sources of timber that they can depend upon. 55

Question: Does Louisiana-Pacific Corp. practice sustained yeild forestry?

Question: Can the timber growth cycle in the operating area of e Louisiana-Pacific mill support a two shift operation?

Question: Are the timber growth rates and timber acerages adequate to support the Lousiana-Pacific mill indefinately?

Question: Is there a possibility that the Lousiana-Pacific mill is operating at a level in excess of that necessary for sustained yeild forestry?

Question? If the mill is in fact operating in excess of the capacity desirable for sustained yeild forestry would it not be in the best long term interest of the community in Round Valley forthe mill to adjust it's production downward to achieve a permenant operating base.

Question; On a sustained yeild basis how long will the Big Butte Timber Sale take to regenerate and mature, ready for harvesting? Will the second growth be of equal quality and size? 56

Summary

The unique relationship of the Yolla Bolly Middle Eel Wilderness to this Big Butte Timber Sale is nicely demonstrated by the very existance of this Draft EIR which was requested by concerned tizens and organizations concerned with the effect of this timber sale on adjoining Shinn Bone Ridge and the Wilderness. If the timber on BLM land at Big Butte must be harvested then every effort must be made to guarrantee that activities in the Big Butte area will in no way weaken the present wilderness character of Shinn Bone Ridge.

The sections on the Biotic Community, pages 18 to 23 are totaly innedaquate and field work will need to be done if these sections are to be viable.

The Ecological Interrelationships section is unacceptable since it also bases its conclusions on the same non-data.

The EIR states that Lousiana Pacific Corp. must have this timber to maintain prodiction volume and stay in business. Data should be presented on the Corporations sustained yeild forestry practices and the forest growth rate and regeneration ability after a harvest. If mill capacity is in excess of forest capacity then the support of this pruduction level will ly accelerat the eventual destruction of the forest. Thank you for this opportunity to comment.

Phil C Kay

Philip C. Kay
101 Coughlan St.
Vallejo, California 94590

Comments from: Phillip C. Kay

51. The discussion of the mitigation measures that will be included in the proposed action has been expanded. A performance bond is required on all Bureau of Land Management timber sale contracts.

52. Public involvement is an integral part of the Bureau's planning processes. Formal public hearings may or may not be the most appropriate means of obtaining that input. Other types of public involvement - workshop sessions, informal meetings, small group contacts - may prove more useful.

53. A filing fee is required for any right-of-way permit. In addition, issuance of a tramroad permit involves collection of fees based on product removed.

54. On-site inventories were conducted; however, the draft statement indicated that species populations were not sampled. The number of species inhabiting the area is fairly well known, with the exception of some wildlife species whose presence is seasonal. The statement indicates that the presence of some of these species is suspected, even though they were not picked up on the inventory.

55. The statement has been rewritten to more clearly relate the importance of Bureau of Land Management timber to the total timber supply situation of the Louisiana-Pacific operation.

56. The timber inventory assumes a sustained yield cut balanced with annual growth. ~~Rotation age.~~ ?

RECEIVED
BUR OF LAND MGMT
MAY 14 9 16 AM '74
CALIF. STATE OFFICE
SACRAMENTO, CALIF.

CALIFORNIA TROUT
KEEPER OF THE STREAMS

May 13, 1974

To		Initial	Date
7	SD		5-13
2	ASD		5/15
	MS		
	RES		
	TS		
	PA		
3	PCS		
	DES		

Action By ______
Return to ______

cc: D[illegible]
Chief, [illegible]

J.R. Penny, State Director
Bureau of Land Management
U.S. Department of the Interior
2800 Cottage Way
Sacramento, CA 95825

Dear Mr. Penny:

Pursuant to our telephone conversation of May 13, 1974 with your Mr. David Little, California Trout hereby submits comments on the BLM's Draft EIS on the Proposed Big Butte Timber Sale, docino and Trinity Counties, California, March 4, 1974. request that these comments be included in the final EIS.

As an organization of angler-conservationists concerned with our state's wild trout and steelhead and their habitat, our comments are appropriate because of this statement in the Draft EIS (pages 22, 23): "Hulls Creek contains spawning and rearing habitat for winter steelhead. Casoose Creek also provides steelhead habitat, and Casoose, Lynch, Peterptor and Red Rock Creeks support resident rainbow trout."

ok

Our concern is heightened because of the susceptibility of the soils to severe erosion (page 13), the steep slopes on which roads will be constructed (page 4) and the inevitability of stream sedimentation and increased turbidity from both road construction and maintenance (pages 42, 43, 56, 57) and from logging (page 47). Especially alarming is this statement (page 49): "Any increase in sedimentation will have a possible adverse effect upon fisheries habitat. Siltation, if not controlled, could actually eliminate the anadromous fisheries."

"Some solid debris could also work its way down into tributaries. This could create barriers for anadromous fish migration."

Furthermore, we note that anticipated off-road vehicle use will increase erosion and turbidity in streams (page 53) and that "Public use will be allowed after a Recreational Management Plan has been completed" (page 5). 40

Your attention is directed to a 1971 report to the California legislature by the state's Salmon and Steelhead Advisory Committee entitled "An Environmental Tragedy". The report describes the severe reduction in California's North Coast steelhead runs.

Road construction and logging in the Eel River watershed almost without exception have been very damaging to steelhead habitat despite efforts for prevention. Thus, it is with some skepticism that we view the EIS description of preventative measures to be taken "whenever possible" (page 56). Streamside buffer strips, for example, need to be described in full detail rather than in cursory fashion (pages 56 and 57). Similarly (page 60), "Log landings will not be permitted in drainage bottoms or adjacent to live streams." Many of the streams are intermittent, dry in summer, yet are important fishery habitat even though not "live" during summer logging operations. Very small tributaries can be important steelhead habitat. Likewise we view the estimated sediment yield of "not more than 3%-5% above background levels after the first two years following road construction" (page 64) as unrealistic. 41.

SUMMARY

The proposed road construction and timber sale will be further damaging to an already crippled steelhead resource in the Eel River system.

RECOMMENDATIONS

Alternative No. 1--No Action--BLM would not acquire access, construct the Big Butte road, or initiate timber harvest and related forest management practices. Louisiana-Pacific Corporation's right-of-way application would be denied.

Respectfully,

Herbert L. Joseph, M.D., Chairman
Steelhead Committee
1516 Napa St.
Vallejo, CA 94590

c: Environmental Protection Agency, Department of Fish and Game, U.S. Bureau of Sports Fisheries and Wildlife.

HLJ:km

RECEIVED
BUR OF LAND MGMT
MAY 15 12 25 PM '74
CALIF. STATE OFFICE
SACRAMENTO, CALIF.

To		Initial	Date
1	SD		5-16
2	ASD		5/16
	MS		
	RES		
	TS		
	PA		
3	PCS	Ail	5/16
	DES		

Action By 3
Return to

May 13, 1974

To:
State Director
Bureau of Land Management
2800 Cottage Way
Sacramento, California 95825

Subject:
Comments on the Department of the Interior, Draft Environmental Statement, DES 74-13 - Proposed BIG BUTTE TIMBER SALE, CALIFORNIA- Prepared by California State Office, Bureau Of Land Management, Sacramento, California.

cc D M
[illegible]

Comments:

1. Page 4, para 2c., "All new cut and fill slopes will be stabilized and drainage installed under the construction contract. This statmment is of particular interest in light of the statement on page 12 and 13"All of these soils are relatively stable in an undisturbed condition, exibiting only slight movement, but are susceptible to severe erosion when vegetative cover and litter are removed." Queation: You have established the idea that the soils are indeed unstable, what precautions will be taken in timber harvesting and road construction to guarantee that work is done according to specific stated standards? Will Louisiana-Pacific Corporation post a bond to guarantee compliance with your regulations. 51

2. Will BLM conduct public hearings at the time that a Recreation Management Plan is Developed? - page 5 Public use 52

3. Page 5 para 5, Will Louisiana-Pacific Corporation be charged a fee for the right of way permit? If not why? 53

4. Page 7, D,1.Shinbone Ridge is 1st quality wilderness for which the only management consideration should be it's inclusion in an expanded Yolla Bolly Wilderness.

5. Page 8, The Forest Service and the Bureau are to be complemented for agreeing to defer development of national resource lands east of Bull Ridge until the Forest Service has finalized its plans for the Shinbone Ridge.

RECEIVED
BUR. OF LAND MGMT
APR 23 9 27 AM '74
CALIF. STATE OFFICE
SACRAMENTO, CALIF.

BROBECK, PHLEGER & HARRISON
ATTORNEYS AT LAW
ONE ELEVEN SUTTER STREET
SAN FRANCISCO 94104
(415) 434-0900

To		Initial	Date
	SD		
2	ASD		
	MS		
	RES		
	TS		
	PA		
1	PCS		
	DES		

Action By ______
Return to ______

April 22, 1974

State Director
Bureau of Land Management
2800 Cottage Way, Room E-2841
Sacramento, California 95825

Re: Big Butte Draft Environmental Impact Statement

Dear Sir:

Presented herewith are comments made on behalf of Richard A. Wilson to the Big Butte Draft Environmental Impact Statement ("the Statement") submitted with Mr. Penny's letter to Mr. Wilson dated March 4, 1974. In presenting these comments it should be understood at the outset that Mr. Wilson acknowledges his obligations to Louisiana-Pacific Corporation as successor-in-interest to Frank W. Crawford, et al. under that certain Agreement for Sale of Timber between Mr. Wilson and the Crawfords dated October 21, 1960. In this connection Mr. Wilson has at all times been willing, and is now willing, to grant such rights to Louisiana-Pacific Corporation as

are reasonably necessary to remove the timber. However, Mr. Wilson believes that the proposed action goes far beyond that which is required for Louisiana-Pacific Corporation to implement and exploit its commercial agreement with Mr. Wilson.

The proposed action contemplates the construction (or improvement) of 27 miles of permanent public roadways for the development of permanent access into the entire Big Butte area. The alleged public benefits to be realized from the proposed action are the stabilization of operations at Louisiana-Pacific Corporation's Covelo mill and the opening of the Big Butte area for motorized recreational uses. The Statement is wholly inadequate in both regards: (1) it fails to document the need for the specific timber sought to be removed and in conjunction therewith it fails to establish what, if any, alternative sources of timber are available to the Covelo mill and (2) it admits that no study has yet been made to demonstrate the demand for or desirability of motorized recreation in the Big Butte area. Yet, notwithstanding the foregoing, the Bureau of Land Management would embark upon a program which would destroy what is admittedly "good" primitive area (Statement, p. 38). The Statement focuses upon the contradiction:

Not answered

6. Page 9, Richard A. Wilson property. I have toured Mr. Wilsons property at Henthorne Lake and am impressed by the ruggedness of the terrain with its steep slopes and numerous small streams. I question the ability of the Louisiana-Pacific Corp. to harvest the timber on the property whithout causing serious erousion and siltation on the Eel Rive in this area of great importance to the Steelhead fishery. If the use of this property must be changed at all it would seem that the types of uses recomended by Lord Tyrrell and Associates would be most appropiate.

7. Page 18, An EIR that lack a population inventory of vegetative species is seriously deficient. What effect will your plans have on the vegetation that you dont know about? An EIR without facts is hardely an EIR at all. The draft EIR should not be adopted until a vegatative inventory is compeat and the findings and the effects of the project on these yet unknown plants are evaluated. 54

8. Page 19, Animals " The actual number of species inhabiting the Big Butte area is not known and no population studies have been conducted in the immediate area". Without an on site inventory how will you ever know how many rare and endangered species are in the area? How can you know the effects of this projects on an unknown species?

9. Page 23, On pages 18 and 19 you note the absence of on site inventorys of vegetative species and animal life. Since you have not conducted an inventory I agree that you have no way of knowing wither or not rare or endangered vegetative species or animal life are to be found in the project area.

10. Page 28, "The identification of dynamicpatterns is usually based upon time series analysis, requiring a program of data collection at regular intervals over an extended period of time. In Big Butte, we lack this contunity of data, so it is necessary to extend our essentially static observations to form broad hypotheses of trends in biotic composition and system function." Relationships without data are meaningless and only the product of simi scientific speculation.

> "The loss of primitive quality, which will be caused by the proposed action, constitutes an essentially irreversible commitment of the area's resources. Of course, given sufficient time, this impact is reversible; but it would require at least one full rotation of 100 to 120 years to restore the area to a primitive condition."

(a) The Economy of Covelo

57

The Statement attempts to relate the economic woes of the Covelo mill to the availability of timber from the Big Butte area. It is said, for example, that the "sale of BLM timber in the Big Butte area can help to insure the stability of Louisiana-Pacific Corporation's Covelo operation" (Statement, pp. 51, 69). It is suggested that unless the proposed road is constructed this mill would have to curtail employment by approximately 100 persons (Statement, pp. 51, 67). These conclusions infer (1) that there is no timber available to the Covelo mill other than Big Butte timber and (2) that there is an adequate supply of timber in the Big Butte area (aa) to justify the expense of constructing the road and (bb) to insure the long-term stability of the Covelo economy. These conclusions are wholly undocumented and are entirely speculative.

As a foundation for thoughtful and logical action, the Statement should take into account an inventory of all of the available sources of timber within the Covelo cutting circle. An evaluation should be made of the productivity of this area on a sustained yield basis. From this analysis a judgment should be made to ascertain whether there exists a resource base upon which the Covelo mill can be sustained at its present level of operations.* Only when this analysis has been made will it be possible to pass judgment on the alternatives and to assess whether the development of access roads as contemplated will have the projected therapeutic effect.

57
(cont)

Perhaps these studies will show that the long-term economy of Covelo must not rely upon the continued operation of the mill on a two-shift basis as the mainstay of Covelo's economy. Indeed, Covelo might better be served by preserving the wilderness area as a base for future quality recreational activity. This is particularly true if the amount of marketable timber made available by the development of the proposed road would provide only a stop-gap or token solution to the mill's current operating problems.

---

* This judgment should take into account the following facts: (1) there is competitive bidding for timber sales within the area and (2) Louisiana-Pacific Corporation may not process all of the logs it acquires at the Covelo mill.

(b) The Roads

The proposal contemplates the construction or improvement of permanent public roadways, with public funds, in contemplation that motorized access to this primitive area will be a desired composite of planned public recreational use. Yet, no study has been made to determine the public demand, or the inherent suitability of the land, for such use (Statement p. 5). This permanent commitment to motorized recreation in the Big Butte area must be carefully considered in light first of the marked decline in this type of recreational activity which has resulted from the energy crisis, and second, in the increased demand for, and scarcity of, low-intensity, high-quality wilderness camping activities in California. As the population of the San Francisco Bay Area grows, there will be increasing demand for wilderness camping experiences which are reasonably accessible from San Francisco. Accordingly, the Big Butte wilderness area could become a valuable economic resource to Covelo. But this wilderness exists only until the mark of man is set upon it; the noise from and scars left by a single off-road vehicle could destroy it. 58

That inherent fragilness further assures that the construction of public roads into Big Butte will, to a substantial extent, predetermine the character of land use not only in the Big Butte area, but also in Yolla Bolly wilderness and other primitive areas adjacent thereto. One can envision, for example, a domino effect resulting from the proposed action, with roads into adjacent areas justified on the ground that the construction of the Big Butte road and subsequent off-road vehicle use have lowered their potential as wilderness areas. The end result of such action could be the establishment of the Yolla Bolly as a drive-up debased wilderness, surrounded by an intrusive set of roads. 59

In conclusion, then, it seems to Mr. Wilson that the public is entitled to ask whether the chosen alternative is the result of sound planning or merely a short-term single purpose solution to an undocumented need. This is not merely an environmental question, for the economic health of the Round Valley region depends upon all of its resources - lumber, water, pasture, and, increasingly, quality open space. Decisions regarding their use should reflect a firm set of priorities derived from sound information and judgment concerning both the capability of the resource and the long-term

needs of the community. The essential purpose of requiring the preparation of environmental statements is to assure the public that individual decisions, like the Big Butte road, are backed by this balanced judgment of foresight and knowledge. Unfortunately, the Statement does not offer sufficient evidence to demonstrate that this is in fact the case.

Sincerely,

H. W. Budge

HWB:cw

cc: Mr. Richard A. Wilson

Comments from: Richard Wilson

57. The statement has been rewritten to more clearly indicate the economic effects of the proposed action, or of delay in the proposed action upon Louisiana-Pacific Corporation's Covelo operation. The environmental statement covers a single timber sale in the Big Butte area. It is beyond the scope of this statement to consider the factors that would come to bear on a total timber management plan for the area.

58. As was pointed out in the environmental statement, public use of the Big Butte area will not be allowed until a recreation management plan is completed for the area.

59. Effects of the proposed action on the adjacent inventoried roadless areas and the Yolla Bolly wilderness are discussed in the environmental statement.

X. REFERENCES

Berg, A.B., 1970. Management of Young Growth, Oregon State University

Black, H.C., 1969. Wildlife and Reforestation in the Pacific Northwest, Oregon State University

California Department of Fish and Game, 1965. Fish and Wildlife Plan, Vol. 3, Part A

Forest Land Uses and Stream Environment, Oregon State University, August 1971

Franklin, I.F., 1963. Natural Regeneration of Douglas-fir and Associated Species Using Modified Clearcutting Systems, U.S. Forest Service, Research Paper PNW3

Fredricksen, R.L., 1970. Erosion and Sedimentation Following Road Construction and Timber Harvest on Unstable Soils in three Small Western Oregon Watersheds, USDA Forest Service Research Paper PNW-104

Gardner, R.A.; Wieslander, A.E.; Storie, R.E.; Bradshaw. State Cooperation Soil-Vegetation Survey, University of California

Hemphill, D.V., 1972. Birds of the Boreal Areas of the Southern Yolla Bolly Mountains. Exerpt Doct. Thesis, Unpublished

Lord, Tyrrell and Associates, Undated. Analysis of the Potential Recreational Use of the Henthorne Lake Area, Unpublished

____________________, Undated. An Economic Study of Round Valley and Covelo - Its People, Problems and Potential, Unpublished

Martin, A.C. et al, 1951. American Wildlife and Plants - A Guide to Wildlife Food Habits, 500 p.

Peterson, R.T., 1961. A Field Guide to Western Birds, Houghton Mifflin Co., Boston. 366 pp.

Standard Soils Descriptions, Soil Conservation Service

Taber, R.D. and Dasmann, R.F., 1958. The Black-tailed Deer of the Chaparral, California Department of Fish and Game, Game Bul. No. 8, 163 p.

U.S. Department of Agriculture, 1951. Soil Survey Manual. Agriculture Handbook No. 18

____________________, U.S.F.S. Silvics of Forest Trees, Agriculture Handbook No. 271

U.S. Department of Agriculture and the California Department of Water Resources. Sediment Yield and Land Treatment, Appendix #2 - North Coastal Area of California

U.S. Department of the Interior, BLM, Susanville District, 1972. Eagle Habitat Timber Sale Guidelines. District Memo 04020-TS25

________________ , ______ , Ukiah District, East Mendocino Management Framework Plan, Unpublished

________________ , ______ , ________________ , East Mendocino Unit Resource Analysis, Unpublished

________________ , Bureau of Sport Fisheries and Wildlife, 1972. The Bald Eagle, Cons. Note 20, 5 p.

Bureau of Land Management
Library
Bldg. 50, Denver Federal Center
Denver, CO 80225